

Fractures, dislocations, diseases and deformities of the bones of the trunk and upper extremities / by Hugh Owen Thomas.

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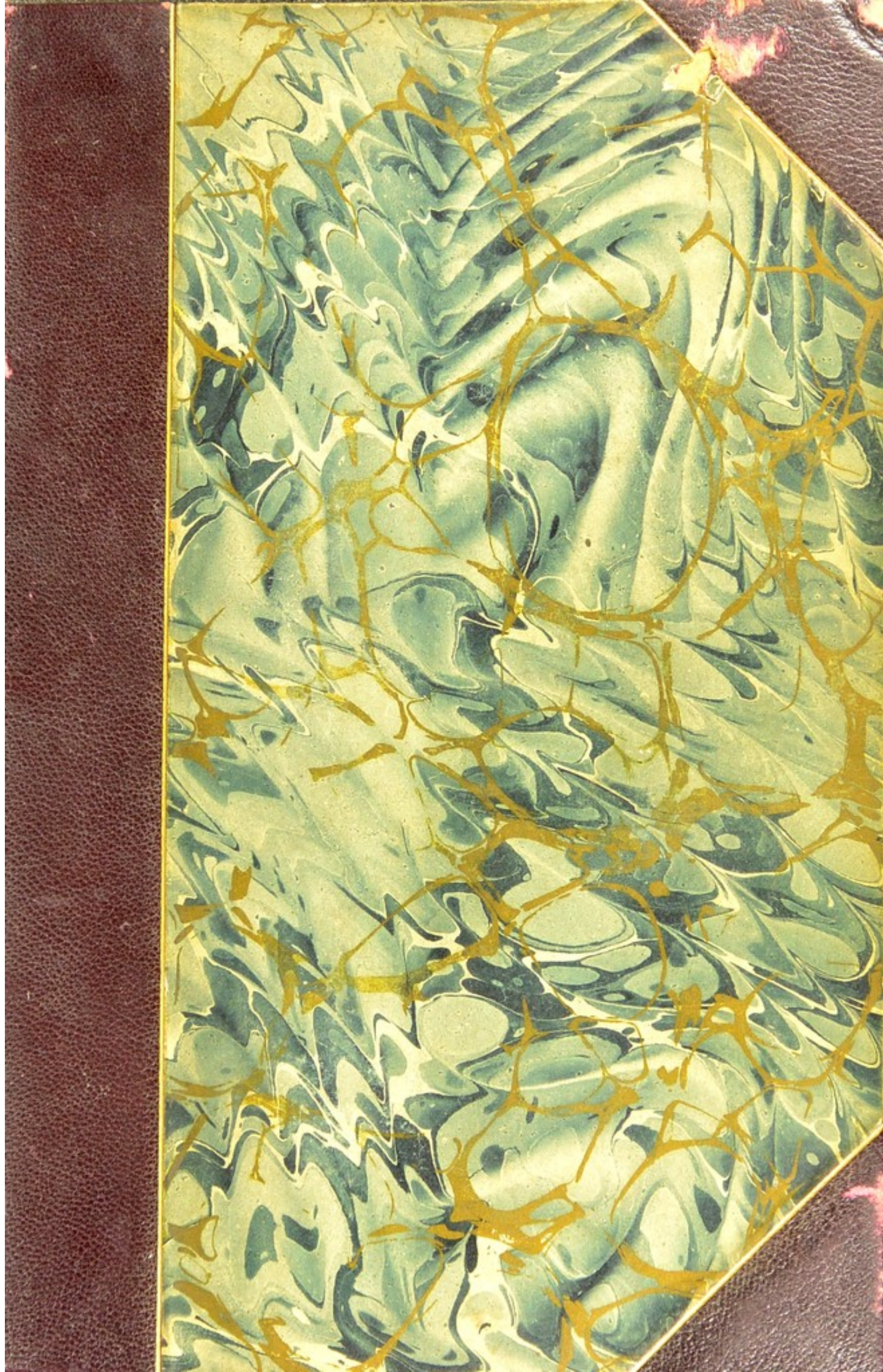
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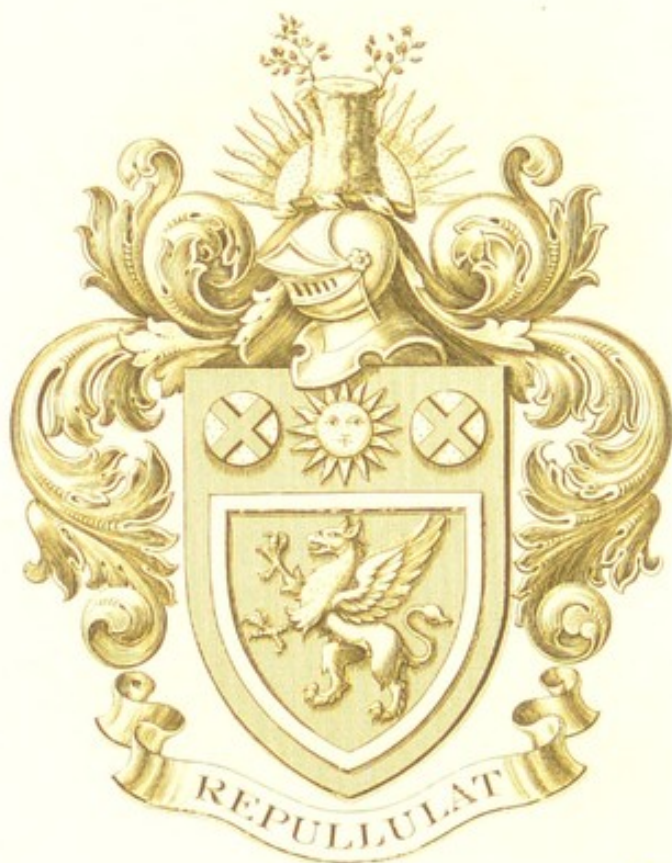
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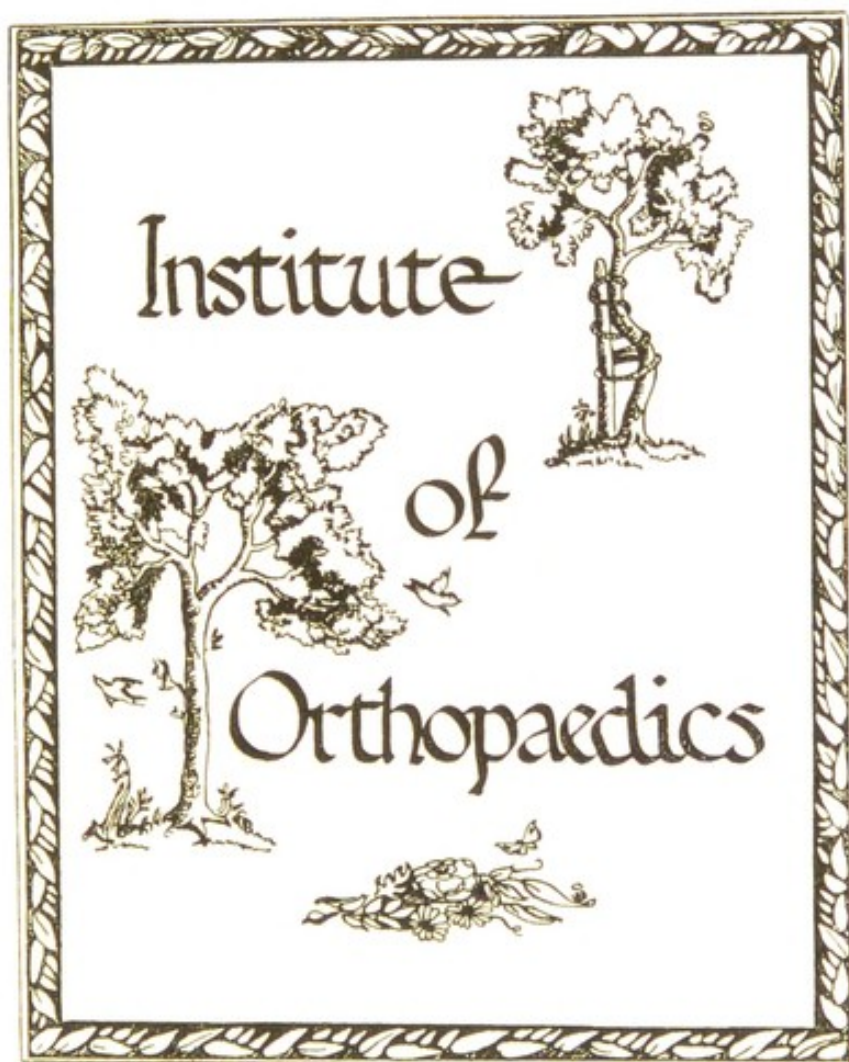
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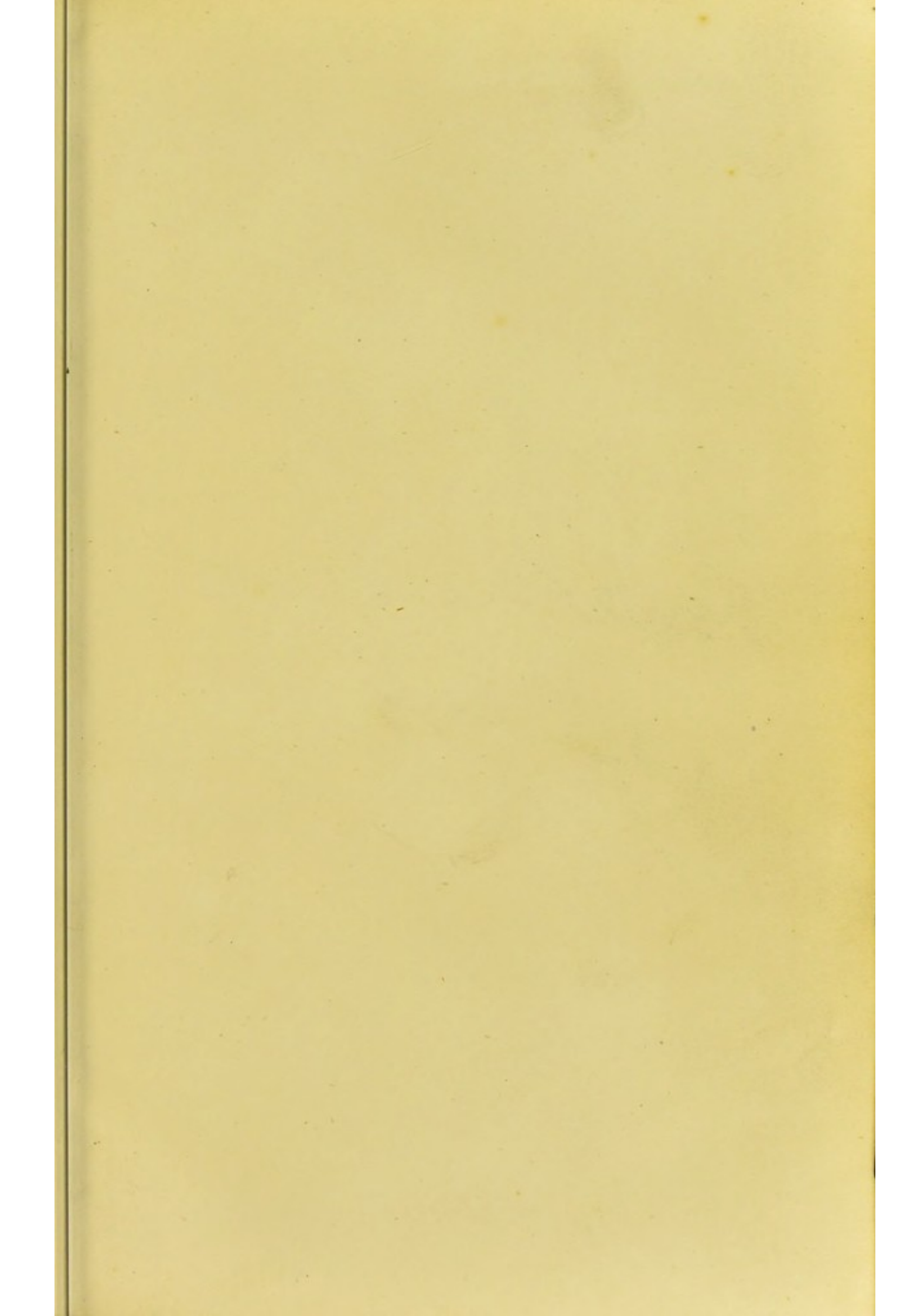


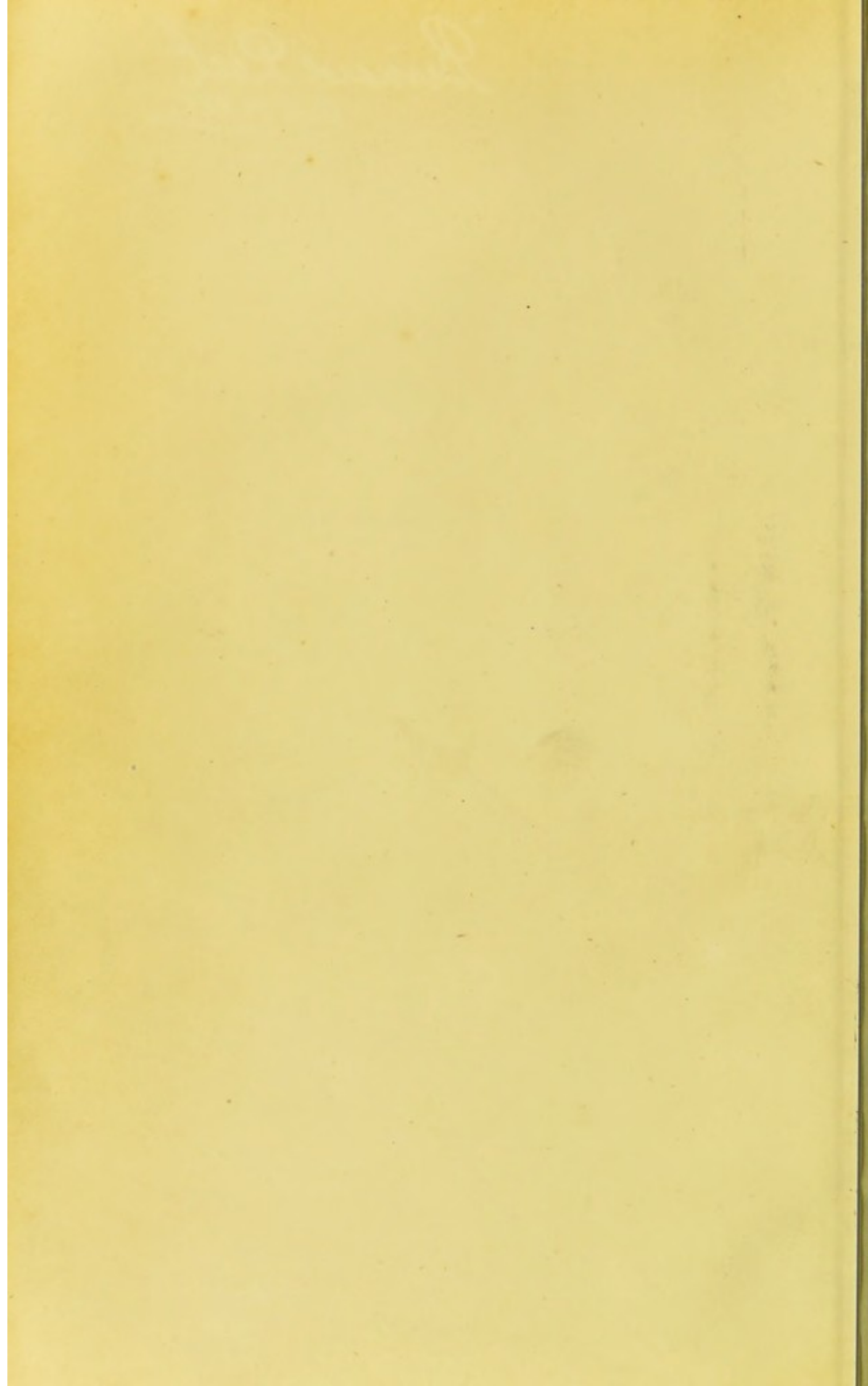
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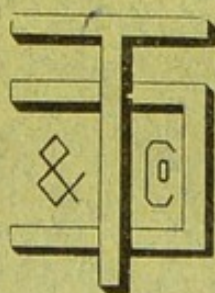
Bernard Roth
Oct 12 1887.

Part III.

DECEMBER 1887.

CONTRIBUTIONS
TO
SURGERY AND MEDICINE.

FRACTURES, DISLOCATIONS, DISEASES
AND
DEFORMITIES OF THE BONES OF THE TRUNK
AND
UPPER EXTREMITIES,
BY
HUGH OWEN THOMAS.



LONDON:
H. K. LEWIS, 136, GOWER STREET.

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Bernard Roth

Oct 12. 1888.

[Part III.]

THE TREATMENT OF FRACTURES, DISLOCATIONS, DISEASES AND
DEFORMITIES OF THE BONES OF THE TRUNK AND OF
THE UPPER EXTREMITIES.

In Parts II. and VI. of my "Contributions to Medicine and Surgery" are given the theories which resulted from, and have since guided, my practice when treating fractures, dislocations, or diseased articulations. In this "Contribution" and in a succeeding one, it is my intention to make known the methods and means employed by me, both to diagnose and treat lesions of special localities, and to discuss the treatment of those abnormalities only which I try to diagnose and amend by methods not generally known, avoiding as much as possible the introduction of actual cases in illustration of the treatment; but occasionally, should the demonstration need it, introducing "ideal cases," with which to exhibit my processes. Fifteen years have passed by since my first contribution to the surgery of fractures was published, and ten years have elapsed since my first contribution to the treatment of articular disease; and, though mainly devoted to practical surgery, they contained a rough sketch of my theory.

The merits of my practice my fellow-surgeons have recognised; but my theories have had only a very limited accept-

ance. But the fact, that the details of treatment, advised by me, have in a short space of time become so widely accepted, and the daily increasing evidence of their beneficial influence in aiding recovery from injury and disease, give me presumptive evidence that my theories are correct and will, in time, become generally accepted.*

* If the reader will compare the past teaching of those, who, before my entry into this field, contributed to the literature of diseased articulations and fractures, with what they now expound, he will perceive that of late years I am rapidly being seconded. Indeed, in some instances, my opinions have been adopted, but in a manner I did not expect. For example, through the kindness of the author, I have, this day (July 18th, 1886), received a reprint of a lecture, reported in the *United States Medical Record*, May 1st, 1886. In this lecture the whole of my teaching relative to diseased articulations has been adopted—notably, my constant contention that hitherto we had taken a too mechanical view of the requirements of treatment, and that, if ankylosis can possibly wear off, it does so best by the patient's voluntary attempts at ordinary use of the part. In fact, the lecture is a skilfully condensed epitome of my writings upon this subject, which I know the lecturer to be conversant with, and which are opposed to the views published by him in the *Medical Record*, July 7th, 1883. To remove from the minds of his audience any suspicion of retailing second hand information, the lecturer informs them: "I have none of my fellow-workers in view, we have all been followers of Dr. H. G. Davis." This informed me that while the lecturer could ignore the source of the information he was circulating, yet he could lug forward a surgeon whose teaching has so injuriously influenced the practice of the surgery of diseased joints, and from whom he now joins me in dissenting. In a second lecture reported, June 5th, 1886, in the same medical journal, the subject of the treatment of diseased knee-joints is discussed. In this some theoretical points of treatment, such as the gripping of the sound part only to steady the diseased locality, are advised, but there is no acknowledgment of an indebtedness. This lecture contains a description of my means of treating knee-lesion, which is not correct; consequently, as might be expected, faults are pointed to. This last mistake of the lecturer reminds me of a New York surgeon who, because he could not carry out the total of my treatment for hip disease, adopted one-half of it, and then rechristened the segment which he was able to comprehend. Some six years back one of our Gallic neighbours published my views as his own, and they were thought so meritorious, that a watchful foreign correspondent of an English medical journal gave us a re-importation. I could point out more examples of this "by night" sort of compliment; but refrain lest my readers should suppose I believe that the most intelligent among us are also the most unscrupulous plagiarists.

I will here give my reader a very condensed summary of my theory of treatment, which will be found in full detail and defended in previous "Contributions."

1st.—The defective part must have the greatest amount of relaxation from the performance of its usual function during the abnormal state :

This being gained sometimes by the direct method, that is, applying our means to the abnormal part, if its recuperative power has not been so diminished that this method would not lead to a cure ; but should the vitality of the part have become vitiated, then the indirect method of treatment ought to be adopted ; this is, our means can be applied to neighbouring sound parts and so control the abnormal ones. The direct method is, in practice, more mechanical than physiological in effect ; by the indirect method our mechanical treatment can be applied very efficiently, and the vitality of the part is only very slightly interfered with, while we almost totally avoid one of the serious errors of our past practice—the treating of our cases too mechanically, as though the part was only a disturbed portion of inorganic matter.

2nd.—That we cannot correctly attribute any defect that may remain to the length of time of relaxation from action of the part during the unsound condition :

For, if the part can recover at all, the repose we can get for it only gives the part a tendency to completely return to or approach as near as possible its previous condition of health.

3rd.—As soon as the part under treatment has become healthy, it will resume its function more fully and readily rather by the attempts of the late patient to use the part than by supplemental violence :

Such are passive motion or any violent manipulations.

4th.—That the signs of incomplete cure are mainly physical :

If the part be sound, its range of function increases with use ; if yet imperfectly healthy, use will not increase it.

5th.—That to reduce all deformities, some degree of unsoundness ought to be induced, so that they may be corrected without disrapture of parts.

When correcting deformities of parts already unsound, the act increases the malaise, hence the importance of at first quickly gaining the desired form, and then of avoiding any deviation from it. When correcting parts healthy when presented to us, we can, by patiently producing more or less unsoundness, alter the form of the parts without any disruption. This can be done on the living subject safely and effectively by physiological accommodation, while, on the dead body, it could not be brought about except by laceration.

To show the importance of harmonizing our practice with these theories, I shall commence to lay before the reader my methods of diagnosing and treating some of the "Fractures, Dislocations, Diseases and Deformities of the Bones of the Trunk and of the Upper Extremities."

When a case of either fracture, dislocation, or disease is presented to the surgeon for the application of his skill, diagnosis is his first step. In surgery, as well as in medicine, the act of diagnosing is very properly referred to as an effort that is to be made preliminary to treatment; that is, the nature of the lesion or disease must then be defined, and when accomplished, the surgeon to the best of his ability, treats the patient upon the basis of that definition and becomes acquitted from blame, though his efforts may not succeed. In the main, I believe this rule to be a just one. But it has been overlooked that, when we have detected the existence of abnormal conditions, we ought, before releasing the patient from our control, to make a supplemental diagnosis and ascertain that there exists no longer any remnant of the ailment primarily diagnosed.

This secondary diagnosis is often very imperfectly made, consequently, a relapse of the disease results, and either the treatment, which may have been very appropriate to the case, becomes discredited, or sometimes the patient, or part affected, is judged to be deficient of reparative power. I hope, in the following pages, to assist in giving such rules for primary diagnosis of defect and secondary diagnosis of restoration, that their application to practice will show their utility. It is, in many instances, of equal importance to diagnose secondarily as primarily. For instance, if a hip or knee-joint becomes inflamed, of what avail would the primary diagnosis and many months of treatment be if the advent of genuine recovery were falsely diagnosed? The limb would probably relapse into a condition of deformity, which might not have been any better if the lesion had never been primarily diagnosed or treated by a surgeon.

As to treatment, I propose to introduce to the notice of surgeons some new mechanical aids, which can be purchased or constructed by the outlay of a few shillings. I hope to show that in the treatment of fractures, joint lesions, as well as in the special department of orthopedics, no appliance, an artificial leg excepted, need cost the surgeon more. The reader must not suppose that I have employed specially designed instruments because they were easily procurable, though their cheapness, as it certainly is no gain to select for use a cheap instrument, if another, which is dear, is more efficient. I know that many guineas are spent upon orthopedic appli-

ances, which are vastly less efficient than others that may be constructed for an equal number of shillings.

THE NOSE.—*The Treatment of Fractures of its Bones and of Deformities of its Cartilages.*—In the treatment of injuries of the bones or of the cartilages of the nose, I have never employed any mechanical aid beyond the use of my hands.

It has been my practice, as soon as the case is presented to me, to reduce any deformity that may characterize the fracture, using for the purpose counter pressure with my thumbs, applied one to each lateral aspect of the nose, but not oppositely placed. Should the fracture deform the nose to the left, then my left thumb is applied uppermost on the nose, to steady it, while the right thumb drives the displaced part into its normal position. The patient is then requested to return on the morrow for inspection, and instructed not to handle the part in the meantime. At the second interview, it will be observed that some degree of deformity remains; the manipulations of the previous day are repeated, and the patient is asked to call again in another twenty-four hours, when some degree of deformity may still be apparent; which is again corrected by manipulation. Perhaps, at this interview, the patient is instructed to revisit me in two days, and when he re-appears, there remains some slight deviation of the nose ridge from the straight line, this is again corrected. When using thumb counter-pressure, much force is used, and the displaced part driven rather beyond its normal position. This modelling is continued, and should be performed every two or three days, according to the tendency of the nose to lapse more or less from its natural symmetry. At the end of three weeks the part may be found to be restored.

If the deformity, characteristic of the fracture, points to the right, then, necessarily, the position of the operator's thumbs upon the patient's nose must be that the right thumb is placed uppermost to fix the part, while the left one drives the displaced portion of the nose from right to left. Should the case be compounded, the same manipulations,

in combination with a light dressing, or an open method of treating the wound, are effective. In cases of injury, especially if compounded, it is advisable not to manipulate too often, lest recovery be much delayed, and the formation of permanent adventitious matter be encouraged at the site of fracture, which would probably detract from the appearance of the part after cure.

During the employment of these thumb manipulations for the correction of long standing lateral deviations of the cartilagenous bridge of the nose, some of the foregoing rules must be altered, and the manipulations performed, if possible, twice a day during the first two weeks, and once a day afterwards, until the part has become well set, in a symmetrical position. In recent injuries, we must not unnecessarily delay health by too frequent manipulations to secure restoration, but in old and healthy deformities, we have, as quickly as possible, to induce a deviation from health, and maintain it long enough for the operator to remodel. When we have succeeded, we relax our interference, and the part resume its health and becomes as unwilling to let the deformity recur as, before manipulation, it was disinclined to permit rectification.

Correction of lateral deformity of the nasal bridge cartilage is just as easily performed after it has existed very many years as after one year. The subjects who consult us for such deformities are generally persons who are of an age, when personal appearance is much considered, consequently, the deformity has not existed longer than from three to nine years.

I have never operated upon any one beyond the age of puberty, the youngest being six years of age.

THE SPINAL COLUMN.—*Diagnosis of Commencing Diseases of the Cervical, Dorsal, and Lumbar Regions.*—To the detection of diseases in the cervical, dorsal, or lumbar regions, if of long standing, my experience will not enable me to add to the facts already known as indicative of its existence. But when the disease is just commencing, there are diagnostic signs which can be observed, and such as are not generally referred to. For example :—

An infant, twelve months old, is brought to the surgeon, and the custodian reports that he has become very cross, cries when lifted, and the surgeon is asked whether his collar-bone or ribs are broken. The surgeon, on looking at the little patient, no matter what position he is placed in, notices that his face has an expression of pain, reminding him of the first stage of tetanus. The surgeon requests that the child be undressed and placed with his chest and hypogastric aspect across the female attendant's thighs, when he sees that the patient keeps his occiput flexed back. Some time is expended in making this observation, and it is found that the patient will not let his head dangle over the attendant's thigh, and make straight the cervical spine. Having noted this fact, the surgeon requests the attendant to place the child on his back across her thighs, and after watching awhile, he sees that the infant makes no effort to bring his chin towards the sternum, as when arising from the supine position. The surgeon comes to the conclusion that from some uncertain cause, probably through rough toying with the child, a jerk has strained the neck. He at once asks the attendant for a pocket-handkerchief, and taking a few slips of stiff brown paper, in length about equal to the measured circumference of the child's neck, and about one and a half to two inches wide, he wraps around these papers cotton wool, sufficient in bulk, when rolled in the pocket-handkerchief, to surround and pack up well the cervical region of the neck, by pushing it under the occiput, thus to raise and thrust forward the child's head ; the free ends of the handkerchief are then tied in front and attached to a binder

around the chest. By the use of this simple dressing well placed, the untoward signs all pass away, and in three or four weeks the patient is well. If cotton wadding or any such soft material cannot be procured, then a stocking, of suitable dimensions, filled with either bran or sawdust, becomes a useful substitute.

The kind of deformity observed in the foregoing ideal case is generally met with during the first twelve months of infant life, and the appliance is fitting only for that early period. After the first twelve months the deformity attendant upon cervical disease is generally a lateral or anterior curve, and a collar of a more substantial construction is required. An efficacious one can be made by using sheet tin as a base, wrapped in boiler felt and covered with leather as shown in Fig. 1, 2, 3, Plate I, Part III.*

The Diagnosis of Commencing Diseases of the Dorsal or Lumbar portion of the Spinal Column during Infancy may be arrived at thus:—

Two children, A. and B., respectively from one to two years of age, are brought to the surgeon for examination and treatment. The parent of the child A. informs the surgeon that she has observed that the child's back is weak. The surgeon requests that the child be unclothed, and placed

* *The British Medical Journal*, for October 31st, 1885, contains a summary of a paper read before the British Medical Association at Cardiff, when the use of a cervical collar was referred to, and a Metropolitan mechanician was credited with having designed it for the gentleman who read the paper; at the same meeting, a neighbour of mine also described and approved of its use. I began in 1863 to use the cervical collar, composed of sheet-iron as a base, covering it with felt and leather. I afterwards tried a collar of felt only, then of sawdust, but had to return to my original model with iron base, the less rigid collar having more defects, that is, inferior power of fixation; and it also shrinks much from wear, and becomes less effective, while the rigid iron base collar becomes by use a better fit and improves by wear. I can prove that my use of the cervical collar commenced at a time when the gentlemen, who were debating its merits, were as yet struggling through the infant stage of life,

in a unsupported sitting position, when he sees that there is a very evident anterior curve of either the dorsal or lumbar, or possibly of both regions. Having noted this physical appearance, the practitioner now requests that the child be placed facing the ground, but across the mother's knees, they being separated so that the patient's trunk should lie as a bridge from one knee to the other. As soon as the child settles in this position, the surgeon finds that the anterior curve, observed in the sitting position, is gone. To make sure that there is, in this a horizontal position, no evident trace of the deformity, he grasps with one hand both of the child's feet, gently raising and extending the grasped extremities, and then notices that the previously observed anterior curve is supplanted by a posterior one, extending symmetrically from the cervical region to the termination of the lumbar one. The surgeon now informs the parent that there is no diseased condition, but merely structural weakness, which an amended dietary will set right. Meanwhile some mechanical support to hinder deformity is required only while the means advised to improve the child's nutrition and development are acting.

Child B. is now presented to the surgeon unclothed, and ready for inspection. Before the surgeon has commenced to make his examination, the mother informs him that she fears the child has "had a fall," and injured some of his bones, because he cries whenever he is suddenly lifted; and further, though she has failed to notice any defect of his spine, she inclines to believe that it is the locality injured. By the surgeon's direction, the child is placed in a sitting position, but after some minutes' observation, no very positive physical deviation from the natural appearance of the spinal column is to be detected. Now the little patient is placed prone across his parent's knees, in the manner in which the child A. was placed, and the surgeon sees that during the child's movements he does not thoroughly make a posterior curve of his spine. On grasping the infant by the feet, and slightly raising and extending his trunk by the grasped extremities, the surgeon observes that the child makes a decided effort to hinder posterior flexion of the spine, and that a portion of it looks less curved than the remainder; or a slight elevation breaks the slightly permissible posterior flexion. As the result of his examination of this case, the surgeon informs the parent that the child is suffering from commencing disease of the spine, and advises suitable mechanical aid as indispensable for the relief of pain and avoiding deformity, as well as for curing the complaint.

The Diagnosis of the Commencement of Disease during the Middle and Adult Period of Life.—During the early period of life, we are debarred from much assistance in diagnosing by the lesser intelligence of our patient to describe his feelings, so it would much assist our practice if a diagnosis of commencing spinal disease could be made by mere physical signs. As age increases, the patients are more and more able and willing to express their feelings, so that we can rely upon the result of cross-questioning them.

The surgeon is asked to examine a boy of about seven to twelve years of age. The parents report that they have noticed that he is disinclined to indulge in his usual muscular exertions; that he expresses himself as feeling tired early in the day and that, when sitting, he rests his hands upon his thighs. The parents further report that, when coughing or sneezing, he complains of a slight pain sometimes in the abdomen, other times in his back. The boy is now undressed, and the surgeon does not notice any special deformity of the spine, but when he requests the boy to stoop, some irregularity of the spinous processes is seen. After this observation, the surgeon places a hand upon each shoulder of the patient, which he firmly grasps and, unexpected by the boy, gives his body a shove forward, and before he recovers from his surprise, the surgeon, retaining his grasp of the shoulders, gives the body a sharp, but moderate, rotation, and the boy's face indicates pain. On questioning the boy, the surgeon elicits from him that sudden contact with other youths during play also gives him pain. The surgeon now, though he has observed no physical deformity indicative of disease, expresses to the parents his strong suspicion that spinal disease is commencing and that suitable treatment should be tried at once.

The next patient the surgeon is requested to examine is an adult, of about thirty years of age. He informs the surgeon that for many months he has felt obscure pains in his thighs and his lower extremities weak, that the act of stooping is difficult to perform, and that he believes that his trouble arose after a severe sprain while at work. After the patient has divested himself of his clothing, the surgeon fails to detect any

deformity, either when the patient is standing or stooping. The surgeon asks him whether, when suddenly attempting to turn over in bed, he is arrested in the act by pain in the lower part of the spine. The patient answers in the affirmative. From further conversation, the surgeon learns that, when riding in a carriage over rough pavement, when carelessly coming down stairs, or occasionally when walking, some pain is felt in the spine. From the foregoing information, the surgeon advises the patient to submit to treatment suitable for spinal lesions, to gain a relief from pain, a protection from deformity and for the recovery of health.

Diagnostic Observations, and their bearing upon treatment, in cases of Spinal Deformity, arising from inflammation or congenital defect.—The surgeon is frequently consulted, long after the cure of the disease, relative to the possibility of correcting the resulting posterior curvature in the dorsal or lumbar spine, and even frequently he is asked to correct a posterior curve when the part is still unhealthy. Most surgeons will agree with me that the amending of a posterior curve in either of these regions, if sound, is impossible in most cases, except by exposing the subject to a very serious risk; but from the teaching that has been formulated in our time, many surgeons assert confidently that an abnormal curve, coupled with disease, can be much diminished. To this I assent. But it is my firm conviction that treatment directed to such a purpose is unwise and delays recovery. I will admit that if the disease has been diagnosed and treated very early, before any posterior projection of the spine is noticeable, the deformity may sometimes be totally avoided. Deformity in the cervical region should be reduced as much as possible and quickly, but withal gradually, if the part by being still unsound permits

its being safely and easily done, as deformity in this region is both a practical and unsightly defect. Spinal deformity, usually termed lateral curvature, the cause of which, in the great majority of cases, has been existent at birth, only commences to have an effect as soon as the subject begins to assume the upright gait. We have a parallel illustration in a congenital deformity in connection with the costo-sternal junction, when one-half of the anterior part of the chest is observed to be more prominent than the other. I will subjoin first an actual, afterwards an ideal, case in illustration of my meaning :—

Surgeon A. is consulted by Mrs. B. regarding her daughter, who is suffering from lateral curvature of the spine. The patient, Miss B., is at the time about fifteen years of age, and the history of her defect has been as follows :—When the young lady was about four to five years of age, Mrs. B. thought that one of her daughter's shoulder blades appeared a little more prominent than the opposite one, and consulted her usual medical adviser, who, after examination, assured her that there existed no abnormality but such as might be caused by habit, and that it would not be permanent. This opinion so satisfied Mrs. B. that for about four years she remained contented with this diagnosis and prognosis. But observing, at the end of the four years, that the difference between the shoulder blades was becoming more apparent, she took the daughter for further advice to a Metropolitan surgeon, who had a reputation for special skill in the management of deformities of this nature. This surgeon encased the young lady in steel supports, which, to judge from their complex appearance, ought to have produced the wished-for effect; but Mrs. B. was of the opinion that her daughter's first noticed deformity had much increased during the five years she had worn the steel arrangement, there was further, a very evident lateral curve of the spine had formed. Mrs. B. now asked surgeon A. to let her have his opinion of her daughter's ailment, and complained that hitherto, although much expense had been incurred, no noticeable benefit had resulted. The lady also very much blamed the practitioner whom she first consulted, that he had not diagnosed the exist-

ence of a defect which required treatment at a period when, she believed, it could have been rectified. Surgeon A., after an examination of the patient, "as in duty bound," informs Mrs. B. that, as the cause of the past and present mechanical abnormality was congenital and imperceptible at an early age, but progressive up to the adult period, that diagnosis by her usual medical adviser was almost impossible, as the young lady, when examined by him, was then only four years of age; the surgeon further informs her that when the Metropolitan surgeon made his examination the overlooking of the defect was then impossible.

We will now suppose a case parallel with the foregoing, and of a common occurrence in surgical practice.

Mrs. C. brings her boy of five years old to surgeon B., and requests his attention to and advice for a prominence of the right side of the boys breast-bone, which, she says, is "growing out." The surgeon, after an examination of the part, informs Mrs. C. that the chest wall is perfectly healthy, and that the defective side is not the right side but probably the left one, the ribs and cartillages being less developed, and that, happily, the disproportion neither interferes with health nor requires surgical treatment.

Both of the foregoing examples refer to deformities of, I believe, a congenital origin; the last requiring no care, but the first requiring attention for the purpose of masking the existence of a radical defect, namely, a disproportion between the lengths of the lower extremities, which thus support the pelvis obliquely and, when the subject stands with both the extremities extended, compel the spine with its load to lean towards the higher line of the brim of the pelvis. I am inclined to believe that lateral deformity of the spine, unconnected with disease, arises, not so much from the difference in the rate of growth of the lower extremities, but rather exists from birth, one limb being formed shorter than

the other.* The shortening observed in adults is never greater than that observed in youths, if we take into consideration the relative size of the extremities. I may perhaps better convey to the reader my meaning by bringing to his recollection what little difference could be observed in the lengths, breadths and forms of the noses of a score of infants, and how considerable would be the difference when they became adults. Granting the correctness of my view of the cause of most lateral spinal deformities to be, that the two extremities are from birth unequal in length, and do "grow apace," yet I must admit that the maintainance of proportional length is not continued in all cases up to adult life, an exception by no means rare is to be observed. For instance :—

A., aged six years of age, is under observation, having a slight projection of the right shoulder blade and a slight lateral curve of the spine, caused by the left lower extremity being a quarter of an inch shorter than the right. At the age of twenty years, after A. has been during fourteen years occasionally under surgical observation, and using means to neutralize the difference between the extremities, there still exists a slight trace of a lateral curve of the spine and a projection of the shoulder blade ; but it can be shown that there exists now a difference in length of three quarters of an inch between the two extremities.

B., aged six years, comes under observation with exactly the same defect as was obvious in the case of A., with the difference that, at the age of sixteen to seventeen, the shorter extremity ceased to grow, so that, instead of there being a difference of about three fourths of an inch when B. arrived at the age of twenty years, there was an obvious shortening of one and a half inches.

* Actual arrest or slow development of a lower extremity is to be met with, but in those cases the disproportion between the two extremities is very great, so that adults may sometimes have one limb eight inches shorter than the other.

In the last of the two preceding sketches is given an example of a case where, soon after puberty, the short extremity ceased to grow, or it grew more slowly, so that a great increase of disproportionate shortening was inevitable. If the surgeon is not prepared with an explanation of this, the patient will often think that other advice should be sought for, as he may suspect the treatment was, or has become, inoperative.

The Treatment of Spinal Deformities.—I am convinced, as Roth also maintains, that for the treatment of lateral spinal curvature, unconnected with disease, mechanical appliances are worse than useless, as they restrain muscular development, and do not, in the slightest degree, correct the deformity.* There appears to me to be only one method that may keep the spine straight or lessen an already formed curve; to maintain the pelvis horizontal, by correcting the unequal lengths of the lower extremities, which is best done by adding so much more height to the heel or heel and sole of the boot of the shorter extremity, increasing the height from time to time, until the adult period of life is arrived at, when the patient can elect to continue the supplement, and have the spine straight, or to diminish it, and be content

* I had the advantage of having a demonstration, by Dr. Roth, of his method of developing the muscles of the trunk, and it is my opinion that his system of treatment must answer the purpose aimed at, as by it the deformed skeleton becomes better covered, so that an already formed defect is less noticeable and less felt by the patient, and the extra muscular power developed by his treatment enables the patient to undo while in the sitting position (as the pelvis is then horizontal) the compensatory curve consequent on long standing with the pelvis, supported by two props of unequal length.

with such a degree of lateral curvature that may not be readily observed when he is clothed. This plan, I am convinced, is the only rational method as yet proposed of treating these deformities.

The daughter of Mrs. B., mentioned in page 13, had been for many years under the treatment of a Metropolitan specialist, and was almost encased with steel supports around the trunk and extending to both lower extremities. Surgeon A. requested Mrs. B. to revisit him and bring her usual medical adviser with her. At this interview the two surgeons coincided in opinion and explained to the parent their views of the requirements of the patient, after which, the armamentaria were discarded, and a few slips of leather added to the young lady's boot and the desired effect was gained.

All lateral curvatures of the spine are not caused by a congenital cause; some there are which are not attended by a declination of the pelvis from the horizontal line, whether the patient be sitting or standing. These are examples of rickets affecting the spine. Such cases are sometimes, when the cause is still operative, benefited by supports and the production of an artificial declination of the pelvis from the horizontal line.

To the treatment of posterior curvature of the spine I can contribute but little. The mechanical treatment adopted by me is that form of posterior support which my friend, Dr. Bauer, of St. Louis, U.S., has introduced into practice and unfairly termed it "a DORSAL cuirass;" unfairly, because it is a most efficient lumbar, as well as dorsal, support; it is in every way an excellent mechanical aid in disease of any part of either the dorsal or lumbar portion of the spine. It is a stay to the sufferer if walking or sitting, and an unvarying shaped bed

to recline upon; and by it we reach the highest and lowest points of leverage, and assist the respiratory act, leaving the chest free for compensatory expansion and the abdomen free to assist respiration. It covers more length of the spinal column than any instrument which has been, up to this date, made known to us. Indeed, when it is supplemented with groin straps, as when the disease is situated low down in the lumbar spine, it will check the patient, even when using a muscular effort to do so, from stooping forward and touching the ground, a very important advantage when we have to treat thoughtless children. It also has another very important merit; it can be gapped to avoid pressure on any projecting deformity of any portion of the dorsal or lumbar spine, and it can be bridged to allow continuous drainage from a sinus opening in either the groin or lumbar region.

Whilst maintaining the opinion that Dr. Bauer's "dorsal cuirass" is the best mechanical aid of all the posterior supports, we know of, I am equally convinced that the plaster of Paris casing, now so popular, is the most inefficient and irrational of all forms in use, and is of but very partial assistance to the sufferer. Certainly, it is better than no mechanical assistance. Many have advised its use on the plea of economy; but to accept it on that ground would be very improper. Any treatment, however cheap, which involves a longer period of ill-health is a dear one at last, even if it were a gratuity. In diseases of the vertebræ, anywhere between the scapulæ, or in the lower part of the lumbar

vertebræ, the plaster jacket has no control over the complaint, it has only a partial control over the complaint, even when it is situated somewhere between the dorsal and lumbar portions of the spinal column. The jacket cannot be attached to the hip blades, and not at all beyond the arm-pits, so that the sufferer is deprived of the advantage of so long a stay, as equals an extra seventy per cent. of posterior traction. In fact, the surgeon who selects the plaster jacket chooses a short lever, when he knows of several others that are longer to be at hand. I have failed to understand why this defective method has become so popular. No matter where the disease is or how severe it may be, the complaint requires the utmost aid. Besides the palpable fact, that the plaster jackets of all varieties are short of an attainable leverage, their use is attended by the arrest of a physiological change which would benefit the sufferer. I allude to the fact that, in spinal disease, the curvature is compensated by salience of the chest. This very happy accompaniment of the disease is discouraged by this all-round rigid jacket; again, its rigidity causes the respiratory act more or less to shake the jacket and to hinder it from remaining quiescent on the trunk. To the mode of applying these jackets, there is a very practical objection. The patients, at each application, are suspended or hammocked, to reduce as much as possible the deformity. Does any gain accrue from this procedure? Perhaps, for a very short period—some hours—the deformity may be diminished. Does any harm follow

this attempt to reduce the deformity? Certainly, and this may last some hours only, but oftener for many days; there must be aggravation of the complaint, as no reduction of any deformity of the bones or articulations, which are diseased, is possible without increasing it for a time. Why should any risk be incurred to gain an inappreciable degree of reduction of deformity of the spinal column, and that the sufferer may be taller only by an inch or so? The shortened stature of the convalescent is rarely noticed except the deformity be great and, in the majority of cases, his clothing effectively hides an inevitable curve that may remain after cure. What would be our opinion of a surgeon's qualification to practice if, during the cure of a diseased knee-joint, he altered its angle of repose every month? No progress to resolution of disease takes place if a constant change of form is permitted.

The rule which should be rigidly followed in the treatment of the disease is this: Keep the patient, if you can, in the shape you found him, and be willing to sacrifice some symmetry to the curtailment of the period of recovery.

If we read the report of the foremost advocate for encasing, in spinal diseases, with jackets, we find he attaches more importance to encircling the patient than to securing plenty of force counter to the direction of deformity—that is, gaining more length and higher points of grip or support behind the spinal column. For instance, in the *British Medical Journal*, September 20th, 1884, he reported thus:—

"The next case I show you is the girl of 15 years, with double lateral curvature, to whom I applied the jacket at my first demonstration, while she was self-suspended. I divided the jacket and shirt through its entire front; and removed the same while she was still self-suspended. I then removed a line or two from the central portion of each side, to allow for the binding of the edges, where the leather and hooks were to be sewed on. I then brought the edges together and secured them in position with a roller bandage, when the jacket was placed by the fire for twenty-four hours to become perfectly dry. Yesterday she put on a thin elastic skin-fitting vest; and, while she was self-suspended, the now dry jacket was carefully sprung open and applied around her, and accurately secured in position by a roller bandage. She then relaxed the suspension, and, dropping her arms, a sufficient amount *was cut out under the axilla* to make her comfortable, and *also in the flexure of the thighs*, so that she could sit in a low chair with ease."

Here he directs us to remove the best portion of the jacket.

Our medical journals constantly report cases of spinal caries, in which palsy of the extremities has supervened, but as soon as the jacket was applied this symptom passed away. I never have contended that the jacket is worthless, but I have maintained that, should the enervation of the extremities pass off during any treatment, it does not count for or against any special treatment; for it has been my experience that the advent of paralysis of the lower extremities in these cases is always followed by a more progressive resolution of the disease, whether the patient be under surgical treatment or not; and furthermore, palsy, symptomatic of spinal caries, very seldom becomes permanent. That it should assist the resolution of its own cause is explicable, as the patient is of necessity not so restive.

Those who judge favourably of any treatment from observing as its result, when the limbs have become paralysed, commit an error of interpretation, probably from having a too limited experience.

I will now give the reader three cases, out of many others, known to me, illustrative of the inefficiency noticed during the employment of the encasing jackets for curing spinal disease :—

About three years ago a seaman, a native of Shetland, consulted me about a pain in his back, which had disabled him from following his usual occupation. On examination, I diagnosed the commencement of spinal disease at the junction of the dorsal and lumbar vertebræ, and procured for him a well-fitting Bauer's spinal shield. This so thoroughly relieved his symptoms that, inasmuch as he had no funds to maintain himself while out of work, he accepted the post of driver and fireman to a small stationary engine ; this post he retained for three months, when, at the advice of his friends, who very properly urged him to get more rest, he became an inmate of a large hospital in my neighbourhood, where he remained several months. On his dismissal from the hospital, he called at my surgery to show me "the ingenious method" of treatment applied to his ailment. On the patient removing his garments, I noticed that he was incased in a plaster jacket, which extended posteriorly one quarter less than Bauer's shield did. I asked him if he had done, or could do any, work since the jacket had been applied. He replied that he had not, and that the whole of the time he had been in the hospital he had been confined to bed, and was now going home to continue the reclination, as he was not able to do the work required of him in his last situation.

From the patient's manner I perceived that he had been influenced so as to arrive at the belief that my treatment had been defective, and I did not trouble myself to show him his error which the history of his case very plainly showed ; at the same time, this case reminded me how very unreliable

the judgment of the sufferer sometimes may be regarding his own progress. This man, with one appliance, was able to drive and stoke an engine, whilst with another he was unfit for any labour, and yet he believed the latter to be the better aid.

Three years ago, a man, who is now residing in Widnes, and in business as a stationer and printer, consulted me for spinal disease in the lower part of the dorsal region. The complaint had commenced some twelve months previously, and it progressed so, that he was obliged to resign a situation which he had held in one of our outlying townships. At my advice, he procured a strong and well-fitting Bauer's shield, which I applied, and which mitigated his distress so much, that he informed me that, if he only had the shield applied before, he need not have had to resign his situation. He continued to wear the shield, and from time to time informed me that it continued to benefit him. However, after the patient had continued the use of the support many months, he happened to go to a seaside resort, and there met a man supposed to be suffering from spinal disease, who was encased in a plaster jacket. This worthy spoke so highly in praise of it, that my patient immediately came to this town and consulted a surgeon skilled in jacketing, who set aside the Bauer's shield, and encased the patient in a plaster of Paris support; but, as the sufferer felt helpless in it, it was thought advisable that he should have it re-applied under a more favourable condition, so he was taken into a large infirmary and had the jacket re-applied. This second application did not give the aid expected, and the sufferer was retained as an indoor patient, and confined to bed for three months. At the end of this period, his hope of deriving benefit from the encasement had worn away, so that he decided to leave the infirmary, which he was able to do only by the help of two assistants. At a convenient opportunity he took off the plaster shell, and re-applied the Bauer shield, which at once enabled him to dispense with attendants and resume the supervision of his business.

As the sufferer in this instance had his error pointed out rather plainly, so he could not fail to find that he had made a mistake. With the extensive posterior check he could walk

about with comfort and attend a business, but totally collapsed on substituting another mechanical aid, and, on discarding the latter and resuming his former appliance, he immediately felt independent of assistants and resumed his light duty.

I will give another example, for the particulars of which I am indebted to another :—

Last year a lady, suffering from spinal disease, was encased in a plaster of Paris jacket by her medical attendant, which she wore about three months, during which she had been, of necessity, confined to her bed. At the end of twelve weeks' reclination, the patient was diagnosed to be pregnant, and as the medical attendant was most anxious to secure for her the benefit of "fresh air," he employed a mechanic to make for his patient one of my modified Bauer's supports. On the shield being carefully fitted to the patient, she at once left her bed and in a week, was able to take walking exercise. Pleased with her sudden improvement, she sought the advice of the hospital surgeon referred to in my last case. Hoping that something more might be done to assist her before pregnancy was completed, the hospital surgeon, despite the clinical lesson which the Widnes case had given him, advised the lady to at once discard the Bauer's shield, as quite unfitting to her case, and to procure a poro-plastic jacket in its place. Accepting his advice, the patient went in search of the jacket, but, on examining it, she noticed that, while it was less rigid than the plaster jacket, it was not any longer, nor did it cover more surface, consequently, she declined to try it, and the progress and termination of her case confirmed the wisdom of the sufferer's decision in retaining the use of the Bauer's shield.

The Diagnosis of Fractured Clavicle in Infants. Its Treatment when existent during Adult Life.—The diagnosis of this lesion is easily made at any age beyond the second year of life ; but, before this period, the diagnosis of a fracture of the clavicle soon after its occurrence is, from several causes, by no means easy to make. For instance, one person, who brings an infant to the surgeon informs him that the suf-

ferer has fallen and injured his elbow ; or another may inform the surgeon that her child has fallen and injured its ribs, "because it cries if any attempt is made to lift it, by grasping the chest with both hands under the child's armpits." Another cause that may lead the surgeon astray is the fact that, though there may be a fracture, there may be no displacement or deformity until a week has elapsed, and then, if a second surgeon is consulted, he gains much credit from detecting a deformity which has become very obvious. The mode of attempting a diagnosis, which I have followed and found fairly trustworthy, has been thus :—First, I exclude, as highly improbable, fracture of the ribs, if, to the contribution of the injury, there has been no greater force than the weight of the infant, because I never met with an instance of fractured ribs in a child as the result of this limited amount of violence. The patient, after having the upper portion of the body exposed, is now examined by the surgeon gently handling the upper extremity, commencing from the hand upwards, at the same time watching the child's countenance, from which, if it shows no indication of pain up to the arrival of the surgeon's hand at the acromion, it may be concluded that the upper extremity is sound. The surgeon now opens his hand, places his fingers in contact with the scapula, and lets the thumb of that hand descend, with moderate firmness, on to a point about the centre of the clavicle, and instantly the infant cries and raises his hand to remove the surgeon's thumb. Now, I should conclude that the clavicle had been so injured by a fall that,

although there was no deformity at present, yet, in a few days, some callosity would be very apparent.

After the period of puberty, fractures of the clavicle are accompanied by a very obvious and palpable deformity. There are known to surgeons several excellent methods of treating this fracture, and I will describe some manipulations, which are equal, if not superior, to any one of these methods of treating this injury, and will be found useful towards gaining a better restoration of the original symmetry of the injured bone. For illustration :—

Mr. A., hurrying to business, suddenly “misses his footing” and falls forward and laterally, his shoulder coming violently in contact with the ground. On arising, he finds his right upper extremity more or less disabled, with pain over the clavicle, slightly aggravated during inspiration. He is conducted to the nearest surgeon, who, on examining him, finds the clavicle fractured, and the riding fragment almost protruding through the skin. Having prepared his retentive means, the surgeon proceeds to reduce the deformity attendant on the fracture. First, he grasps, with both hands, as much as he can well clutch of the skin immediately over the site of fracture and forcibly raises it, then draws it in a line with and in a direction from the point of the riding portion of the fractured bone. This being done, he retains his hold of the skin with one hand, and with the other compresses the riding fracture into contact with the lower one. He now releases his hold of the skin, still compressing the upper fragment, while he carefully applies his retentive apparatus. In this instance, the surgeon, after employing adhesive straps, applies his calico band, so that the weight of the slung arm should be transferred to the riding fragment, and thus tend to maintain it in better contact with the lower one. Plate 2, 3
Fig. 1, 2, Part VI.

In the preceding case the surgeon employed some care to thoroughly free the points of fracture from intervening tissues, and the wisdom of his doing so is very apparent in practice, as it often gives an immediate reduction, and the maintenance

of symmetry is much easier. In the treatment of the foregoing case, no pad was placed on the axilla, nor did the surgeon apply cross-bandages, as he believed from observation that what he had done, with so slinging the arm of the injured side that some of its weight was transferred to depress the riding fragment, was quite as much as need be done.

Disconnection of the Acromial End of the Clavicle and its Treatment.—The extreme deformity indicative of this injury, can, without much difficulty, be corrected and maintained until the connection between the clavicle and scapula has been repaired, if the case is presented for treatment within a few days of the injury. The surgeon should push up the scapula, using the arm of the injured side as a prop to raise it, while the displaced external end of the clavicle is pressed down into its place by his hand; or should the displacement be one that has existed for about two to three weeks, two or three heavy blows with the surgeon's fist will almost obliterate the characteristic deformity. For example :—

B. is brought to the surgeon complaining of injury to his right shoulder, which, on examination, is found to be a disconnection of the external end of the clavicle from the acromion. The surgeon commences to treat the case by placing the patient to sit in a chair; then he places by the chair, on the floor and immediately under the position of the patient's right elbow, a footstool or box. The surgeon now places his left foot upon the box, which is so high that, as the surgeon flexes his knee, this joint is situated below and close to the patient's right elbow, which is flexed, so that the forearm lays across the patient's stomach. The surgeon places the patient's elbow firmly on to his knee, which is firmly propped by the box upon which his foot rests. Having made this arrangement to sup-

port the scapula, the surgeon, by firm pressure downwards with his left hand, reduces the deformity and maintains the reduction, meanwhile, with his right hand, he aids his assistant to apply the retentive appliance, so arranging it that as much as possible of the weight of the upper extremity should be active in pressing down the clavicle and raising the scapula. See Plate 3, Fig. 1, 2, Part VI.

P. consults the surgeon, regarding an injury to his left shoulder, which had occurred about two weeks previously. In this case, on examination, the surgeon detects disconnection of the acromial end of the clavicle. He repeats the preliminary arrangement which he had made in the case of B., with this difference, that he employs his right foot, leg, and knee as a foundation for the patient's left elbow, and attempts reduction of the deformity now with his right hand, but makes very little impression upon the deformity; but upon "landing" two or three heavy blows with his closed hand upon the projecting clavicle, he succeeds in very satisfactorily, though not perfectly, in restoring the symmetry of the part. The surgeon now uses his right hand to hold on to his reduction, until, with his left hand and his assistant's aid, the permanent retentive arrangement is applied.

Q. consults the surgeon, regarding an injury to the right shoulder-joint, which is diagnosed as a disconnection of the acromial end of the clavicula. The surgeon performs upon Q. the manipulations which so well answered his purpose when operating upon B.; but he finds it almost impossible to retain the scapula and acromion in contact while the dressings, necessary for maintaining it, are being applied. This difficulty arises from the extra muscular power of the patient Q. from pain and his inability to abandon the limb to the control of the surgeon. Meeting with this difficulty, he now proceeds to operate by another method. The patient Q. being in the sitting position, the surgeon requests an assistant to take the patient's left arm and extend it laterally from the trunk; this being done, another assistant is requested to grasp the arm of the injured side, and likewise extend it in a lateral direction from the body. The surgeon then instructs both assistants to exercise traction in opposition to each other, while he, having prepared a long adhesive strap, two and-a-half feet long, and about three inches wide, the central portion of which is covered for about eight inches with cotton wadding, so as to form a soft pad, places his padded portion of the adhesive strap in the patient's axilla, and passes the two ends of the adhesive strap upwards, making

them cross each other over the acromion, then finally attaching the left end slantingly across the patient's chest, the right end descending over the scapula, ending beyond its angle. Now, the surgeon requests his assistants to cease pulling, and he brings the right arm down to the patient's side and flexes the elbow so that the forearm lays across the patient's stomach. He now finishes with bandaging and slinging the right upper extremity in the manner he followed when finishing the dressing of cases B. and P. The primary portion of the manipulations which the surgeon performed in the case of Q. is illustrated in Plate 3, Figs. 3 and 4, Part III.

It is very important to inspect, within forty-eight hours, any case of acromial disconnection, which may have been dressed in the manner described in the last case, inasmuch that when the limb descends in line with the trunk, the encircling band, passing through the axilla and crossing over, a little beyond the acromion, exercises some degree of constriction which may become so intolerable next day, that it might be advisable to slightly slacken it. This mode of fixing the displacement is not so useful if the disconnection has not been of short duration,

Injury and Inflammation of the Shoulder-joint. — After thirty years experience, with very favourable opportunities for observation, I incline to the opinion that this joint is more liable to injury than any other, and, though the majority of cases of shoulder-joint lesion have been brought about by primarily acting force, that in others the cause has been a secondary one. For instance: it is a rare occurrence that the force of a fall, which fractures an arm or dislocates an elbow; is then expended; it often finishes at the shoulder-joint, which soon begins to suffer from inflammation,

the commencement of which the surgeon seldom detects or the patient notices, as the greater lesion detracts their attention. While inclined to the opinion that the shoulder-joint is more frequently injured than any other joint, it is my belief that injury to or inflammation of this articulation is not so liable to end in suppuration, as injury or inflammation to other important articulations, such as the knee, hip, or elbow-joints, for the very plain reason that, after injury, the shoulder-joint is never liable to the same amount of concussion or friction as a knee, hip, or elbow-joint must be, inasmuch as the great mobility of the scapula protects it from severe concussion and friction. As yet, we have treated shoulder-joints very unworthily, except when a severe injury such as dislocation or fracture of any of its parts, has been diagnosed. In fact, ailments of the shoulder-joints, when not acute, have been ignored by us, and so have presented a fine harvest for "outsiders" to dabble with, until time and disuse have restored health to the joint.

Before commencing my contribution to the surgery of the shoulder-joint, I will give an example of the conjectural mode of diagnosing and of the haphazard manner with which disease of this joint is often treated. It is a reprint from an introductory address on the "recent progress in surgery," delivered fifteen years ago by a teacher in and honorary surgeon to a large hospital. Though fifteen years have passed away since this address was delivered, yet, as the lecturer's colleague in the hospital re-echoed his opinion in an

address, delivered to the members of a medical institute, so late as five years ago, it is very probable that both of these gentlemen are in accord to-day as regards the subject. This is probable if we bear in mind the fact that some of our leading Metropolitan surgeons have expressed a like opinion, even up to this date, so that their teaching has lead to a retrogression in the treatment of articular diseases, and the production of a crop of men who, in the treatment of these lesions, manage defects more like joiners than surgeons, treatment the offspring of erroneous teachings. The portion of the address which, to me, appears of a doubtful complexion, is the following, and relates to a shoulder-joint :—

“The patient told me that several years previously, while attempting to put something upon a shelf rather above his reach, he felt a severe pain in the joint, and had evidently injured something about the articulation. Inflammation followed, and was treated in the ordinary way, but his surgeons assured him that there was no dislocation or fracture, and that in a few weeks he would be quite well. He had consulted many eminent members of the profession—had been duly leeches and blistered, and had been tortured by the moxa. Yet he still carried his arm in a sling, and almost despaired of ever being better. I examined the part carefully but could detect nothing wrong, except a general but by no means very marked atrophy of the muscles around the shoulder. On making deep, continued pressure, however, between the coracoid process and the head of the humerus he complained bitterly, and while I was holding the elbow firmly in one hand and pressing with the thumb of the other upon the painful spot, in order to discover the cause of the pain, the patient, who was seated in a chair before me, suddenly slipped off it on to the floor and fainted. An audible snap occurred, and was so painfully communicated to my hand, that, at the moment, I was afraid that the humerus was broken. Instead of this, however, on recovering from his syncope, the patient got up, moved the joint freely in every direction, and declared that he was now quite well. And so he has continued ever since. Not-

withstanding my most fervid declarations to the contrary, nothing would convince either him or his friends that I had not reduced a dislocation of the shoulder-joint, or that his previous advisers were not a set of ignorant fellows, who couldn't even tell when a man's shoulder was out. To myself, however, while glad of the relief which had so fortuitously come to my patient, the matter became a subject of serious contemplation and it became the starting point for a line of practice which I have constantly followed in appropriate cases ever since."

In a previous part of these "Contributions," my opinions, and some evidence in their support, have been published. My belief was then — and remains unchanged — that we have been lead astray, by drawing inductions from an incomplete interpretation of the facts presented to us. For instance, in the foregoing quotation, we are not informed by the lecturer, of the lesion indicated by the symptoms enumerated. Perhaps some of my readers will think that "All's well that ends well," inasmuch as, that after

"The 'audible snap, the patient got up and moved the joint in every direction,' and 'declared that he was quite well.'"

I can assure the reader that I have witnessed very many of these "audible snap" cases of the shoulder-joint lesion, and, at the time, felt very satisfied that much benefit had been secured. But gradually, they became more and more rare occurrences for me to witness, until they ceased altogether, for many years, because I ceased to manipulated such cases from a conviction that my early observation and judgment were wrong. This "audible snap" case I would have been willing to accept as an exceptional instance of what appears to me as unreasonable treatment, producing much benefit. If the surgeon who mani-

pulated had informed us that, some weeks after the operation, he had examined the patient and, by the absence or presence of certain signs, had known that the shoulder was sound as well as useful. If he had given reasons why, we might have been able to accept his deduction. That the patient

“Declared that he was now quite well,”

is no evidence to me that any more than an illusive change resulted from what had been done. I can well remember many a declaration of a like character, with curses deep hurled at a prior practitioner, and a general jubilation of patient and friends, myself included, when really damage had been done and not assistance given to the patient. How often does it happen that a physician, attending a patient during the recovery from a serious illness, is told by him that, as he feels perfectly well, he purposes to return on the morrow to business, but is at once prohibited by the physician who, from a better knowledge of the patient's condition, knows that health has not been completely restored? The feelings of a patient, though at times a useful guide, in very many instances, is certainly far from trustworthy. To bring evidence nearer to the present time as to the state of surgical opinion regarding my theme, I give an extract from the second lecture previously referred to:—

“Now, what does it all mean? It simply comes to this, I suppose, that after prolonged rest there are fibrous bands in the joint, and the fasciæ want stretching, and the tendons are glued to their sheaths. In short, the joint is in a position of a rusty lock, and the bone-setter takes the key and gives it two or three good turns, and then it works sweetly.

It may be said that we all know that, but somehow or another we don't all know when to turn the key. I am beginning to think that we not unfrequently delay it too long. It is said, 'Ah ! but how many joints do the bone-setters ruin by their rough and brutal treatment ?' That is a very difficult question. The public always like the quack to triumph over the regular man. It is always so in religious and medical matters, so that the cures are well blown about, while nothing is heard of the failures. No doubt there is truth in this ; but I confess that I have been looking about for a long time to catch a case where a bone-setter has produced serious mischief, and, in one sense, I am sorry to say I have failed. I strongly suspect that if there were many joints seriously injured by the bone-setter, we should know more about them. Of course he stands in an excellent position. The joint has always been for months carefully doctored before he sees it, and so, doubtless, he steps in at a fortunate time for a *coup*. The deduction is that we must anticipate him more frequently than we do, and, by earlier bending, prevent that triumph of the enemy, which is not gained in a fair and legitimate way (for that we would not cavil at), but by misrepresentations of the falsest and most lying character, which are impossible for us to refute, and which seriously damage us as a profession. If you ask what are the indications for breaking up a joint, I find it difficult to reply. Only experience will thoroughly teach one ; but, in a general way, length of time from the injury, amount and character of rest, coolness of the joint to the touch, and absence of pain except on movement, are the safest guides."

The irony of Fate ! That she should have selected me, specially trained, to oppose the teaching maintained in time past from the chairs of Æsculapius in this town by surgeons who now are enjoying their endless rest, and that she should so alter my preconceived opinions. That I have had to sally forth to champion those who are gone against their successors.

The reader will perhaps excuse me digressing with so long a discussion upon this modern heresy, but I hold that a thorough investigation is required, especially as we find our teachers driving their pickaxes into the solid foundations which

our predecessors have laid down for us. They did not go so far as I have reached, but my idea is identical with theirs.

How can a joint, that has "two or three good turns, work sweetly?" Why ought we to be "beginning to think that we not unfrequently delay it too long?" Suppose we do, what harm to the joint? "How many joints do bone-setters ruin by their rough and brutal treatment?" These practitioners are only now beginning to see how many they injure, consequently, it is rather a "difficult question" for some just yet.*

"I confess that I have been looking about for a long time to catch a case where a bone-setter has produced serious mischief, and, in one sense, I am sorry to say I have failed."

* In 1879, a qualified surgeon published a volume recommendatory of manipulations said to be made by bone-setters as a means of treating articular lesion. In this volume he professed to have found out the merits of bone-setting. The eccentric doctrine taught in the publication was immediately accepted as correct by one who may justly be called our leader in surgery. This latter fact at once led to the practice of manipulation becoming more general, and to the development of a fresh crop of manipulators who, I know, during the subsequent ten years, netted much profit by their innovation. Many of these men are shrewd observers, and I know now that their practice is to treat some of their cases by orthodox methods, doubtful cases by much more moderate manipulation, and others by only a pretence at manipulation while the subjects are unconscious under æther. Some of us may live long enough to learn that the last two tricks have been played out. On perusing the various medical publications issued this and the preceding week, Oct. 7-15, 1886, I find that these papers contain indignant protests against the fact that a County Court judge accepted the evidence of a bone-setter in preference to that of two qualified men. Possibly the County Court judge was an occasional reader of our medical periodicals; if so, he would find addresses given at Medical Institutes and lectures delivered by the Prince of Pathologists, approving of the very manipulations, the utility of which were called in question before the judge. A practice that is recommended by the great lights of our art ought not to be wrong because the artist is not possessed of a qualification. Irrespective of the question of the qualification of the several parties, I believe the unanimous protest of the medical press, though inconsistent, was proper, although the gentleman, who first led us so much astray is, in my opinion, better qualified to practice his art than any man living, and I will complete my tribute of admiration by expressing my convictions that he is as excellent a man as he is a surgeon.

This is just the reverse of my experience. It would not be a difficult matter to produce evidence that serious mischief is the general result of the practice, which the lecturer advises to be adopted "at a fortunate time for a *coup*."

I shall give here one example which the surgeon, who isn't at a lucky *coup*, could not refer to in his address. I could give others, but against an unreasonable practice one example is as convincing as a host. It will be a report of a case of shoulder-joint with defective action, to correct which violent manipulations were tried, and in an Institution which is under the auspices of the two gentlemen, from whose addresses I have extracted quotations. The circumstances recorded in this case could not have occurred if the practitioners, whom the subject consulted, were certain of the principles that appertain to our practice.

In the early part of the year 1884, Dock Gateman 194 consulted me regarding a defect of his shoulder-joint, which was diagnosed by me as being a mild degree of inflammation of the joint. The joint was treated in the manner I have adhered to for some years, but the patient's shoulder improved only very slowly, and, after about four months treatment, the sufferer ceased to visit me. Shortly after this, it happened that my friend, Dr. Gormley, also surgeon to the dock gatemen, residing in north district, was visited by that D. G. 194, suffering from a cold, who, after he had a prescription for this ailment, informed Dr. Gormley that, by the request of his superior officer, who had said that he did not think that Dr. Thomas understood the case, he had sought for aid at an hospital, one of the many medical charities attached to this town. At that institution, the gentleman, under whom he had placed himself for treatment, had adopted manipulations, and that with great improvement of his defect, in proof of which, the patient swung his arm violently in various directions, and afterwards expressed his astonishment at my obtuseness in not having comprehended the cause of and the remedy for his defect,

In about a week after this interview of the sufferer with Dr. Gormley, he returned for further advice for his "cold," and he was still very jubilant over the result of the manipulations of his shoulder-joint, which were continued for many weeks. Four months after the D. G. had ceased to visit me, Dr. Gormley, meeting him, enquired how his shoulder now felt, and my late patient informed him that it was worse than ever. This information being conveyed to me, I sent the sufferer an invitation to visit me, which he accepted. An examination showed me that the original ailment still afflicted the shoulder-joint. My treatment was resumed and continued nine months ere I was able to pronounce the joint sound and the patient felt that it was so.

The time expended upon this case whilst at first under my care was three months, at hospital, as out-door patient, three months, then under my treatment the second time nine months.

Neither the "snap" treatment nor the "coup" at a "fortunate time for a coup, with two or three good turns" gave the result expected, though the patient had at one time joyfully asserted its efficacy. Subsequently a long period of treatment was expended upon the case, before the disease was resolved. It was not a longer time than was to be expected, as I have always found articular disease, which had been either delayed or aggravated by injudicious interference, to give way only stubbornly to treatment.

With this remark of the lecturer's, "If you ask what are the indications for breaking up a joint, I find it difficult to reply," I cordially agree. It indeed is a difficult question to answer, and will always remain so, and I believe it is a task we need not attempt.* It is "stony ground."

* The perusing of this part of the quotation brought to my mind an anecdote of a traveller, who, during his visit to an ancient town, went to a museum to see the relic

At this date I am supplied with unexpected information, which shows that the doctrine which I hold to be heretical pervades the teachings of some of our representative surgeons.*

There has just been issued from the press a volume on Disease of Joints, for the use of students, in which there is a chapter devoted to the subject of "bone-setting," where can be found the following paragraph :—

"At the present day irregular practitioners still continue to enjoy no small reputation by curing cases which, though they are a source of great inconvenience to patients, have been unwisely passed over by surgeons as too trivial for either careful diagnosis or serious treatment.

In another paragraph we are informed thus :—

"And we can understand their success, for every surgeon now well knows that instances are common enough in which pain and limited motion, resulting from sprain and other injuries, may at once be set at right by even rough and unskilled movements, or, indeed, by an accidental wrench."

In a former "Contribution" of mine on the principles applicable to the treatment of articular disease, I criticised adversely the opinions and teachings of this representative of metropolitan surgical opinion. A perusal of this volume, particularly of the chapter devoted to the subject of "Bone-setting" and "Surgical

of some admired member formerly residing in this planet. It was reported to be a single hair from his head, placed between two pieces of glass, for safety and convenience of inspection. The traveller, in company with many others, when close to the relic, being anxious to make certain of observing fully the object, slipped a *douceur* into the palm of the custodian, and asked him to point out the prized article, but to the traveller's surprise, the custodian informed him that, though he had been in charge of the hair for twenty years, he had not been able to detect its presence.

* "Diseases of Joints," by Howard Marsh, F.R.C.S. Cassell & Co. 1886.

Manipulation," has not altered my opinion that his conclusions, in regard to this special question, have arisen from his imperfect knowledge of diagnostic methods, applicable to the detection of the initial period of the appearance or disappearance of disease. Despite our improved pathological knowledge, the treatment advised in this treatise is in principle hardly as appropriate to the complaint as the treatment in the days of Brodie. It is throughout too mechanical, very suitable to arrest the motion of a joint in a dead subject, but utterly unsuitable to secure physiological rest for diseased living parts. No wonder that in this volume we are told that of "Excision of Joints," it is "a" department of work which is undergoing such rapid development . . . and when performed in the earlier stage of disease, usually followed by a rapid healing of the wound."

Granting that the incidents related by the author in his chapter on "bone-setting" were correct beyond question, they are extremely rare, and, so, no justification for generalising or founding a new speciality, heralded forth by the unjust assertion that—

"Regular, but as yet very ill-informed practitioners were so often beaten in their encounters with disease, that they lost credit in the public eye; while the empirics, making the most of their cures, and not seldom laying the blame of their failures on the surgeon whose previous treatment they alleged had done all the mischief, were credited with powers that approached the miraculous."

I was the principal factor in arresting the introduction into our surgery, of the errors of practice contained in the Davis-

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Sayers' treatment : and succeeded so far that, with the exception of what I notice in this volume, their teachings has, by the majority of surgeons, been rejected, and I predict that the practice advised in this volume is destined to be set aside. And, as this volume represents the latest teaching and practice of those surgeons who have strayed from the paths of our predecessors, I shall, in here discussing the treatment of localities, try and give proof of their being astray, taking this volume, which so ably represents them, as my standard, and also prove that these surgeons, who are hungering to extend their speciality, have yet some information to acquire from the "regular," "but as yet illinformed practitioner," the class to which I belong.

The Diagnosis and Treatment of Inflammation of the Shoulder-joint, caused by Injury or Constitutional Defect.—

The shoulder-joint, like other joints, is liable to two phases of inflammation. The joint suffering from the first one has a tendency to recover, while suffering from the other, it has a tendency to a progression of the inflammation; the first, when diagnosed, has been termed the subacute, the second, so easy of diagnosis, the acute.

The diagnosis of the last is generally easy to make, the local signs and constitutional disturbance, which more or less co-exist, being sufficiently intense to quickly draw the surgeon's attention to them; so much so, that he need not look for such physical evidence of the condition of the part as

diminished range of action, which he would look for when inspecting an inflamed knee or hip-joint. The surgeon never gets special credit—nor, indeed, is such due to him—for diagnosing the presence of acute inflammation of the shoulder-joint, as the patient often precedes him with an opinion on the nature of the case, which, generally, he has only to confirm. The subacute kind of inflammation, which may arise in the shoulder, can be as certainly, though not as easily, diagnosed as the acute form. When the surgeon commences to glean facts for coming to a decision, the inflammation may be so mild that he cannot see any change in the configuration of the shoulder; touch gives only little information, and, as the humerus lies parallel with the trunk, both in health and disease, he can gain no evidence of the inflammation by a physical test. Interrogating the patient elicits only the information that he suffers from defect of power to use his limb in special directions. I have always found that the milder the complaint, the greater is the discredit attached to the surgeon if he overlooks its presence.

In the foregoing paragraph, I have indicated the planks which the surgeon cannot lay his hand upon and with which to build a diagnosis, or to perform the by no means easy feat of convincing the patient that his complaint is a physiological and not a mechanical one, such as “slipped sinew,” “joint partly out,” “sinews stretched.”

To enable me to submit to the reader my contribution towards improving our diagnosis and treatment of inflamma-

tion of the shoulder-joint, I shall give a series of cases, some of them ideal of a type constantly to be met with, and others that are real ones :—

Mr. A., interviewing a surgeon, informs him that he comes seeking for advice regarding a defect of his right shoulder. He tells the surgeon, that, about six weeks previously, while walking, the pavement being wet, his feet slipped, and he made a sudden effort to save himself from falling ; during this action he felt a sudden pain in the right shoulder-joint, which soon passed away ; that in a few days after, the shoulder-joint began to feel uncomfortable when he tried to place his hand behind his back to unbutton his brace ; that further, he felt some discomfort if he extended the upper extremity in a lateral direction from the body, and he was not easily able to make it pass beyond a right angle formed by the extremity and trunk. The patient, having related so much of his symptoms, asks the surgeon if the joint be in its "right place." Now, at the surgeon's request, the patient removes sufficient clothing to expose the shoulder-joint, after which the surgeon, glancing at the contour of the part, replies that he does not find a dislocation of the joint. The patient replies, "Then, is there no sinew wrong?" The surgeon answers, "The sinews are quite right ; but if they were wrong, and only so physically, it would not matter if the joint be healthy." The patient now asks the surgeon, "Then, what is the matter with my shoulder that I cannot use it like the other one?" The surgeon, making as yet no reply, grasps the right shoulder with his left hand, so placing its thumb as to be on a spot situated over the head of the humerus, and at the inner edge of the coracoid process of the scapula ; he firmly grasps the part, and notices that the patient winces. The surgeon now grasps the shoulder with his right hand, placing its thumb well behind the head of the humerus, which he again grasps hard, exercising most pressure by the thumb. The patient interrupts the surgeon with the remark, "Not so painful there, sir, as in front." The surgeon places his finger on the insertion of the deltoid, and the patient remarks "sometimes that spot is painful." The surgeon now repeats, upon the left shoulder, the two manipulations he first performed upon the right one, and asks the patient : "Do I hurt you?" He answers, "Yes, you do ; but it is quite a different sort of pain." Then, resuming his interrogations, he asks, "Have you any pain when you keep the limb at rest?" "Occasionally, a little." "Have you any pain at night?" "Not much." "Is the

pain worse at night or day?" "Worse at night." "Can you lay all night on the right shoulder?" "I can." "But can you lay on the shoulder all night, and, on awakening from your sleep, feel the shoulder comfortable?" "No, sir; I feel stiff and uneasy, consequently, I am careful of late not to do so." Now, the patient is told by the surgeon that the right shoulder-joint is suffering from a very slight degree of inflammation, and, after a request by the patient to be treated, the surgeon applies to the shoulder, as aids to resolution of the complaint, sufficient adhesive plaster to fix the upper extremity to the scapula, and to limit more the motion between the head of the humerus and the glenoid cavity, and the patient is instructed to moisten the dressing morning and evening with cold water and, when replacing his clothing first to pass the right arm through his sleeve, but when undressing, to withdraw the right arm last. The case being a mild one of inflamed joint, combined with the fact that it is subjected to no concussion (like the hip or knee when walking), the surgeon permits the part to be completely clothed, the forearm being slung from a ribbon passed round the neck. The surgeon impresses upon the patient's mind that, the stiffer he retains his shoulder the slacker it becomes, and the sooner the inflammation must recede. The patient is then dismissed, but returns in a week, and reports that as yet he can feel no improvement. On repeating his visits to the surgeon in the third week of the treatment, he repeated the discouraging report—"I feel no better, sir. I cannot lift my shoulder any more than before I saw you, and it still pains a little if I pass my arm behind me." The surgeon replies, "That any attempt on the part of the patient to try the motion of the joint in the specified direction delays recovery, and is only 'taking off the lid of the nearly boiling pot.'" The surgeon, after this admonition, asks the following question: "Does the shoulder give you any pain now when you lay on your right side?" The patient replies: "I have never lain on that side since our first interview, as I understood you wished me to avoid doing so." The surgeon now questions: "But do you feel any pain or discomfort on awakening, even when you have not lain on the right side." The patient answers, "No, I do not, and it certainly does not feel so stiff in the morning as before." The surgeon now informs the patient that the previous treatment ought to be continued without variation, until he finds himself, during sleep, unconsciously turning on to his right side, and on awakening, being free from pain or discomfort in his shoulder; and that, when this stage of resolution has been arrived at, it will be proper to resume ordinary use of the shoulder-joint, and that the stiffness and other attendant disabilities

will then wear off, instead of increasing, as would happen if the joint were exercised during its present state of unsoundness. The surgeon impresses upon the patient that he ought to be thankful that, during the diseased condition, motion of the part became difficult or painful in proportion to the degree of inflammation in the part; if it were otherwise, such joints would often be irretrievably damaged before the sufferers would take their complaints into consideration and seek aid. The foregoing remarks of the surgeon satisfies the impatient consulter, who continues to visit and carry out the instructions for another period of six weeks, at which period the surgeon informed him that he may resume the use of his right arm. Two weeks after the patient had been pronounced by the surgeon to be cured, he returns and complains that the shoulder-joint is still limited in its motion, and desires to know if he applied rubbing, bathing, or if he got a friend to "work it," would the sinews get supple. His friends say his shoulder has become "sinew tied" from long disease and "kept stiff too long." The surgeon informs the patient that to bathing locally with warm or cold water there can be no objection, but that resorting to violent rubbing or supplemental manipulation might be injurious, and certainly would not be profitable, but now that the "axle which was hot" has cooled down, by giving it use and time, it would soon run smooth and far. This was the last professional visit made by the patient to the surgeon. Many months after the surgeon meets his former patient in a thoroughfare, and, after an exchange of greeting, he is informed by him that though many of his friends wanted him to try this nostrum or consult that oracle, he had persevered in adhering to the surgeon's imperative instructions, and the result showed that so far as his case is evidence, the surgeon dogmatized to him from a correct appreciation of his complaint and its remedy.

B. seeks a surgeon, and, on being introduced to him, at once commences to take off his upper clothing and, at the same time, to inform him that, about seven months ago, whilst he was driving in a gig, his horse stumbled and jerked him from his seat so that he fell on the road and dislocated his left shoulder. Some people who had witnessed the accident conveyed him to a surgeon, residing close at hand, who informed him that he had found and reduced a dislocation; but, although seven months have elapsed since then, he feels no better, and now "I wish to know if my shoulder is properly set as I do not believe it is, for I cannot use it properly, I cannot raise my arm above my head, nor put it behind me, and I have to get assistance to dress and undress." The surgeon at a glance observes that the shoulder-joint is mechanically correct, and informs

the sufferer of this, who replies, "Then how is it that I cannot use it like the other shoulder, and besides, not being able to use my arm, I cannot rest with the pain I am in at night." The surgeon, in reply, informs him that the mechanism of the part is correct, but its health is not so, and that most happily the unsoundness, so long as it exists, involves some limitation to the employment of the shoulder-joint, and prevents friction of the articular surfaces; pain and limitation of motion increasing or decreasing just as the part deteriorates or improves, and being more or less noticeable in proportion to the reasonableness of the treatment it may have been subjected to. At the patient's invitation, the surgeon, considering this case to be one where a much greater degree of inflammation affects the shoulder than in the like lesion diagnosed in the case of Mr. A., straps the shoulder-joint with adhesive plaster, slings the upper extremity by the wrist to the patient's neck, and advises the damping, with cold water, of the shoulder dressing night and morning. The patient is now assisted to dress, but the left extremity is not allowed to be placed in the sleeves of his clothing, as thus enveloped by shirt, waistcoat and coat, the extremity is not so ready to be employed. The patient being dressed, questions the surgeon thus: "When shall I be able to use my arm?" The surgeon replies, as soon as you can lay on it all night and feel no pain. Then he asks, "How long will that be?" He is told it is not possible to tell; the period of treatment may last eight weeks, which would be an instance of rapid improvement; sixteen weeks is the most probable time that may be required before cure is complete. The patient now inquires, "Must I keep my arm in this position (meaning under his clothing) all the time?" The surgeon answers, yes; the stiffer you keep the shoulder the slacker it will get, the sooner the pain will leave and the less damage will be to the joint should perfect mechanical restoration be impossible. The surgeon having thoroughly instructed the patient how to conduct the treatment, requested him to make a second visit after six weeks has elapsed. When the patient made his second visit to the surgeon, he greets him with the remark, "Doctor, I am sorry to inform you that I am no better." The surgeon first makes some sympathetic remark, assists the patient to undress for his inspection, and on observing and feeling the shoulder-joint, remarks, "I think you said that you were not any better." "Just so, doctor; not any better." "Not any better?" "Not any." The surgeon requesting his careful attention, asks him, "Do you not find at night when awaking from sleep, that the pain is not so severe?" "I do, certainly; the pain at night is not so great. I now

sleep the best part of the night." "Do you not notice that if you are in a carriage the jolting does not now annoy you as much as it did six weeks ago?" "Well, I do not feel that quite so much." Then again cross questioning the patient. "I believe that you came here this morning by train?" "Yes." "Did that mode of travelling so much shake you as to cause discomfort?" "No, it did not." The surgeon now informs the patient that, despite his assertion to the contrary, there is evidence of progress to a cure. The patient however pleads that "I have no more use of my arm than on the first day I consulted you." The surgeon answered, "I am very glad you have not, for if you were now better able to move the extremity, you would irretrievably injure the joint. Its limited motion was the first sign of its abnormal condition, and will be the last symptom to pass away, and the motion will fully return, provided the inflammation does not much change the component parts of the joint." The surgeon now dismisses the patient, requesting him to repeat his visit at the end of another six weeks. Before leaving, the patient asks the surgeon if he be certain that there is no rheumatism in the joint. The surgeon replies, "It would not alter our policy of treatment even if rheumatism were complicating the case." At the patient's return a third time, twelve weeks from the date of his first interview, on greeting the surgeon he informs him that "I am certainly better, but I do not think I have any more use of my arm." On examination and questioning the patient, the surgeon concludes that the joint is now healthy, and advises him to place, when clothing himself, the now cured extremity in its sleeves and gradually use it, but to carefully abstain from using more force than he can tolerate with comfort, and requests another visit after another six weeks have elapsed. On the patient reappearing for the fourth time, in reply to the surgeon's inquiry "How do you now feel?" he replies, "Well, my shoulder is not yet as it ought to be." The surgeon on making an examination, finds all the evidence of continued health in the part, and as much power and motion as could be expected to be gained in the time (six weeks) allowed for trial, so he advises the patient to continue the use of the limb, and adds the utmost possible range of motion will be gained by ordinary use, but if supplemental force (passive motion) be performed, it may subtract from, but never will add to, the "possible motion" to be gained by ordinary employment.

An actual case.

C. introduced himself to the surgeon as a farmer and a native of the Isle of Man, and requests his opinion as to the nature of an injury sustained

by his right shoulder-joint. He informed the surgeon, that about six months previous, he had injured his shoulder and placed himself under the care of a practitioner in "the Island" who, after treating the case for some time by local applications and rest, had subsequently resorted to the manipulation of his arm in various directions. This change of treatment had not had the expected effect of restoring the power and motion of the shoulder-joint, consequently he consulted an unqualified practitioner, the son of a deceased bone-setter of some repute in past time. This practitioner informed him that the manipulations would lead to permanent injury to the part, and advised their discontinuance, while his qualified adviser insisted that it only wanted exercise. The patient, having related so much of the history of his ailment, desired the surgeon to give his opinion of his case. The surgeon, from a careful examination and questioning of the sufferer, arrived at the conclusion that the joint was in the condition of inflammation of moderate intensity with a stiffness quite out of proportion to disease present, and from his past observations of the effect of forcible motion applied to the case of joints, he could come to no other conclusion than that much of the stiffness present in this case, like all brought on by supplemental force, would be permanent. The surgeon having made the foregoing mental calculation, informs the patient that it would be wise to adopt a more conciliating method of treatment with the joint. The sufferer having acquiesced, the surgeon dressed the shoulder and instructed him how to manage the treatment, up to the period of his next visit. This case occupied a period of nine months ere the inflammation was completely resolved and much defect of motion remained though full power was regained.

Dr. E. accompanied by patient D. consults the surgeon, and requests his opinion regarding the condition of D.'s left shoulder-joint. D. being a member of a "Weekly Relief Club" is suspected by the club to be a malingerer, and Dr. E. invites the surgeon to give him his opinion whether the man is a sufferer or not. The subject, having divested himself of his clothing, is asked by the surgeon, "What do you feel the matter with you?" and is told, "I cannot properly use my arm, sir." Please let me see you work it about." The surgeon carefully watching the actions of the shoulder, notices that as soon as he had lifted his extremity nearly to a right angle with his trunk, it was arrested, and, that if the patient tried to maintain it there, he requisitioned the right hand to sustain it, otherwise it would come down "with a run" and drop suddenly instead of gradually as when the will has perfect control over a joint. The surgeon now asked

the subject, "Can you not place the left hand on your head?" "I cannot, sir." "Please try." Now the surgeon notices that the scapula move, directly the extremity starts moving. The patient is now requested to place his hand behind his trunk; he does so, but protests that it is somewhat painful. Now the surgeon requests the patient to stand up; then after placing his right hand on the sufferers right side just below the axilla, and with his left hand placed so as to grasp the angle of the patients left scapula, the surgeon fixes it, and at the same time requests the patient to raise the left arm, and the surgeon notices that he could only raise it a very slight distance from his side, and that the motion between the humerus and scapula was abnormally limited. The surgeon now, as if casually, remarks, "I suppose you have some pain during the day?" "Some, sir; but mostly at night." Dr. E. and the surgeon after consultation decides that in this case, the man is really a sufferer.

Case F. The secretary of a friendly society brings one of its members reported as suffering from a defect of his right shoulder which, the individual asserts, incapacitates him from pursuing his employment. The officer of the society requests the surgeon's opinion. After the patient has been undressed the surgeon desires him to state, in how much and what manner he feels it defective. He replies, "My shoulder is very weak, and I have pains in it, especially when I use it." The surgeon remarks, "Especially in day time?" "Just so, sir." The surgeon requests the patient to make such movements as he is able, and by watching closely, he observes that the extremity takes the scapula but languidly, with it. The surgeon at first avoiding such points as he knows to be tender ones, when disease exists, feels the joint with his thumbs, and inquires if pain is felt from his manipulations. The patient replies in the affirmative. Now the surgeon applies his thumbs to points always tender during this unsound state, but does not detect any variation in the patient's feelings from what he observed when compressing other parts. The surgeon now informs the secretary that the supposed sufferer was justly suspected to be a malingerer.

G. introduces himself to the surgeon as coming for his advice regarding his left shoulder-joint, which had been under treatment during the previous nine months, but he informs the surgeon, as the shoulder keeps stiff and weak, "I have come for your aid." After the patient had exposed the shoulder-joint, the surgeon observes that although its motion is limited, it was accompanied by pain only when the extremity reaches its limit of motion, when the patient made an effort of only the will to move the extremity. Moderate pressure on certain parts gave no pain that was unusual in char-

acter, no form of jarring of the body caused discomfort to the shoulder joint. By enquiry, the patient informs the surgeon that at one time he suffered from night pain; that now the joint is quite painless, if no violence is exercised on it, the defect remaining being only some limited range of motion. The surgeon now informs his consuler that his shoulder can get no aid from the art of the surgeon, and that, if the joint be let alone, its motion might increase.

I shall now relate my experience of "an audible snap case," and, as there was a reference made to it in one of our daily papers, some of my contemporaries may recollect the circumstances. It occurred sometime between the years 1857 and 1862.

The patient was a middle-aged female, suffering from a defect of one shoulder-joint, who had been attended during many weeks by the parish surgeon. At that period there resided in this town a celebrated manipulator of joints. The "guardians of the poor" authorised the "relieving officer" to take the patient to this practitioner for his treatment. I happened to witness the operation performed upon the shoulder, heard the "snap," and, directly after, saw the patient move her arm in various directions, witnessed her delight and that she was congratulated by the officer attendant upon her. I thought at that time the operation was a most suitable procedure for remedying the defect. One of the daily papers, a few days after, contained a report of a meeting of the board of guardians at which the "relieving officer" detailed the snap he had heard, and the effect that followed. The operation consisted in suddenly bringing the upper extremity across the patient's chest, then suddenly raising the arm upwards and finishing with a few passive motions. I watched this patient for many weeks after, and I now know that the limb was not improved by the treatment, and remained defective. Whether it ever became sound while under my observation, it is not possible for me to say, because of my ignorance at that time of the indications of recovery.

From the cases, ideal and real, which have been sketched and reported in the preceding pages, the reader will perceive, that it is my experience, that the signs of even the slightest ap-

preciable degrees of inflammation in a shoulder-joint are of two characters, physical and physiological. Of the first the signs are that, certain motions of the arm are performed with difficulty, the extent of motion between the humerus and scapula is lessened, and, if the complaint has existed long, the contour of the shoulder shows some emaciation. The signs of the second are that, the patient feels a special pain in the affected joint, in comparison with what is felt in the sound shoulder when firm pressure is applied to each between the coracoid process and head of humerus, and also at the deltoid insertion. Further, the upward, lateral and backward motions of the shoulder are performed with difficulty or even pain and, lastly, the patient cannot lie on his affected side in bed with comfort and undisturbed sleep. The physiological signs are generally the first to be noticed by the patient and, as evidence of progress to recovery, they give the first indication of improvement, and the only signs which the surgeon need take into his calculation when planning his treatment or searching for evidence of successful treatment. If he succeeds in so treating the patient that the physiological signs disappear, he will find that the physical signs of the lesion will also disappear without his interference. The surgeon, in diagnosing whether his patient is cured or not, has only to find out if the physiological evidence of the disease be or be not present, and to bear in mind that, so long as the joint is unsound, the stiffer it is kept the sooner it must become supple, and the sooner the inflammation will subside and leave least trace of its past existence.

The difference noticeable between the real sufferer from inflamed shoulder-joint and the malingerer is that the first generally describes his feelings pat, with a long story; the latter wanders about with a shorter story, for the deficiency of which he compensates by plenty of facial expression of pain when points, not probably painful, are being compressed.

The Treatment of Dropped Shoulder-Joints.—What is meant by a dropped joint? This phrase is not of my introduction. It has been applied to a special defect of the wrist joint, and it is my intention to extend the use of the term to other regions suffering from a like defect. This condition I hold to be a mechanical one, although the cause may have been either physiological or mechanical or both. A joint which is more or less flaccid from nerve defect is not, in my opinion, a dropped joint but a paralysed one. During this defect, however, certain muscular tissues become elongated, and occasionally their antagonists become slightly contracted. But when the nerve power has returned to the part, and the weaker of the two antagonistic muscles cannot be properly exercised, this is a dropped joint which has arisen from nerve defect, a cause which has ceased to operate. This muscular change is favoured either by position during the nerve defect or from the nerves, supplying the several sets of antagonistic muscles, not recovering contemporaneously as regards time or unequally in respect of power. The term “dropped” has been hitherto exclusively applied to a defect of the wrist. But it equally applies to a condition of the shoulder, elbow, finger,

hip, knee or ankle-joint. A dropped limb may be defined as one in which the area of action of certain muscles has been restricted, there being no defect of function within this lessened area and, though their power is also lessened, it is only an effect arising from limitation of their use leading to some degree of atrophy and change of form in their muscular tissue, which, if the defect has not been of very many years existence, must by appropriate treatment soon pass away. We are sometimes consulted by patients suffering from "dropped shoulder." This form of shoulder-joint lesion was a commonly "to be met with" defect in the surgery of the past, even in my time,* and, though now very rare, the few cases we meet with appear to present some difficulty in being corrected, and their treatment is worth notice—perhaps requires some amendment. I will commence the illustration of this subject by giving an ideal case of the "surgery of the past type," time 1857.

A., accompanied by a friend, enters the surgeon's consulting room, in the year 1857, and informs him that he comes desiring his assistance to remedy a defect of his right upper extremity. The patient informs the surgeon that a month ago he fell and dislocated his shoulder, which was replaced in half an hour afterwards by a surgeon residing not far from the spot where he fell. The operation of reduction occupied about twenty minutes, being performed, while he lay upon the surgeon's consulting room floor, with the operator's foot or heel in the patient's right axilla. The sufferer wished to know if the joint had been properly reduced or what was the present defect which incapacitated him from using his arm. The surgeon, having listened attentively to the foregoing history, requested the patient to remove the clothing from his right shoulder and arm, and noticed that the friend, who accompanied the patient, came quickly to

* I shall refer to this subject again under "The Reduction of Dislocated Shoulder-Joints."

the patient's assistance and performed the most of the operation of disrobing, while the patient was standing and supporting his right forearm with his left hand as though the right forearm were fractured, but noticed no expression of pain in the patient's face; he further noticed that when the sleeve of the dress was being drawn from the right arm, and the patient was obliged to release his hold of his right arm by the left, the whole right extremity seemed to dangle helplessly with no signs of pain. The shoulder and right extremity being now exposed, the surgeon perceived that the whole extremity had begun to emaciate; that the reduction was perfect; that the power of extension and flexion of the whole arm was lost and sensation diminished. The surgeon wrote a code of treatment which was to consist of baths and friction, and his friends afterwards supplemented the surgeon's instructions by advising the aid of "eel oil," "neat's foot oil," or better, if procurable, the "seven oils," or if it were convenient, the extremity might be enveloped in a warm cow dung poultice.* The patient continued this varied treatment, and, finally, nearly recovered the use of his injured extremity.

The signs of dropped shoulder-joint or other joint are just the reverse of the symptoms noticed when the joint is inflamed.

B., by occupation a "water inspector," when last winter climbing a wall in the discharge of his duty, fell and dislocated his right shoulder. The displacement was soon reduced, and the patient appeared to have progressed very well during the six weeks following his accident, but, feeling dissatisfied, he consulted me. I found no signs of unsoundness, but noticed that between the acromion and outer aspect of the head of humerus there was an abnormally large step. On placing his right olecranon in the palm of my right hand, and applying my left hand to the right acromion, I was able, by exercising force in the direction of my hands, to restore the normal extent of step that existed between the projection of the acromion and the head of the humerus, but on relaxing my effort the humerus could be noticed to fall down again. It was also found that the elbow-joint suffered from "drop," his wrist and finger-joints being perfect. The sufferer could wag his arm and partially extend it, but only slightly flex his forearm. I explained to the patient that the defect

* Of which our present linseed meal is a near relative—certainly one of the same "race."

remaining was a purely physical one, and at his invitation I dressed the part in the manner employed by me to treat disconnections of the acromion from the clavicle, supplementing it by weekly applying moderate flagellation over the shoulder-joint and its neighbourhood. This treatment was continued for four months ere it was successful in restoring the tone and function of the part.

C., a young man, twenty-four years of age, residing near Overton, Cheshire, consulting me, gave as the history of his ailment; that, while at work, a stone, weighing about twenty-five pounds, rolling down from the height of a few feet, struck him on the left shoulder blade; he then consulted a surgeon, and was under his care for nineteen weeks with no improvement. I cross-examined the patient specially as to whether the stone had not landed upon the shoulder or clavicle, and he was very positive in maintaining that the stone struck him on the scapula, but near its upper edge. On examination I found the shoulder and elbow-joint in the condition of moderate drop. The treatment I had found to answer in such cases was applied, and, after three weeks, he informed me that if the improvement progressed as it had done during my superintendence, he expected he should not have need of another consultation with me. However, he had to return again in a week, and, though very much improved, he was certainly not yet recovered, but from my previous experience I had no doubt we would succeed.

The signs of dropped shoulder-joint, observed by me, are a loss of power with relaxation of the muscular and other structures in connection with and comprising the shoulder-joint, and the absence of any signs that the joint is suffering from any degree of inflammation or fluid distension. In extreme cases the normal embonpoint of the shoulder is gone, and the outlines of the acromion and head of humerus are easily recognizable; but between the acromion and head of the humerus there is seen a sulcus, as though atmospheric pressure were pushing inwards the soft structures which outwardly form the contour of a normal shoulder, reminding one of the

shoulder of an infant, the subject of extreme infantile palsy of the upper extremity. The treatment, which I adopted in the case of B. and C., is generally effective in correcting the observable physical defect of dropped shoulder and in restoring power. It mainly consists in taking the weight of the upper extremity from the soft structures of the joint, transferring it to the scapula and clavicle, and supplementing it with local stimulation, and so posing the whole extremity that the elongated structures are shortened or assisted.

Dislocation of the Shoulder-Joint.—Judging from my own experience, it is my belief that the shoulder-joint is more frequently dislocated than any other articulation of the human skeleton, and that the majority of these cases are dislocations of the head of the humerus directly under the glenoid cavity. During twenty-nine years, I must have reduced, inclusive of recent and ancient cases, more than about two score annually, about four per cent. of which were ancient dislocations, which were so, either from having been overlooked or where there had been futile attempts at reduction.* The duration of the

* Despite the number of dislocations of the shoulder which have come under my notice, it was not until to-day, February 18th, 1887, that I had the opportunity of reducing a recent dislocation of the humerus backwards (subspinous scapularis). The sufferer was of the same nationality as myself, and hailed from the town of Denbigh; his age was sixty-five. Seven days before consulting me he fell from his gig and felt thereby severely shaken and injured about the right shoulder. As soon as he had recovered from the shock he came to me. From his manner before being unclothed I expected to find a fractured collar-bone, but when the parts were exposed, I could see that the collar-bone was uninjured, but that the shoulder seemed slightly enlarged. The arm lay parallel to the chest, in the usual position of rest, and the fore arm lay across the stomach supported by the hand of the sound left extremity. Placing my left hand upon the acromion of the injured side, and, gripping the right elbow with the other hand, I gave the humerus a few rotations and could feel no crepitus,

recent
period of displacement, varied from one day to nine months. I would look upon a displacement, that had existed for four weeks or a less time, as a case of recent dislocation. I have only once given an anæsthetic to reduce a dislocated shoulder, as in my opinion it would increase my difficulties. In this case a friend who I was assisting urgently desired its administration. For a recent dislocation, that is one which has been unreduced any time under four weeks, I allow myself three minutes to restore the part, and if the case comes under my time—classification as an ancient dislocation, then

but noticed that there was more motion of the head of the humerus than can be felt in an ordinary dislocation. Under the spine of the scapula an indistinct swelling could be felt. Now suspecting posterior dislocation and still handling him very gently lest some change might take place before I had made my diagnosis, I next, at the anterior of the shoulder, tried if I could feel any trace of the glenoid cavity, but could only feel an unusual depression alongside of the coracoid process. I now felt satisfied that the case was one of posterior dislocation of the humerus, and placed my patient in the operating chair, slipping his right extremity through the ring-post of the chair, and made two of my assistants powerfully extend the extremity in a direction at right angles to the trunk, the ring of the post fixing the scapula. I next re-examined the region external to the coracoid process, and on pressure, my two fingers sank deeply into the empty glenoid cavity. Perfect fixation of the scapula and powerful counter-extension was well maintained for half-a-minute in a horizontal direction, after which time rotations and swing motion were given to the extremity in a direction backwards during the next minute. These manipulations proved of no avail. I now requested my assistants, while retaining unremitted traction, to bring the extremity in every way square with the body, then standing behind the patient and placing my left hand upon the coracoid process, and my right on the swelling noticeable under the supraspinous process of the scapula, I exercised sudden counter-pressure and felt the head of the humerus glide into its proper position, at the same moment the patient expressed relief from distress. Although this is the only recent case I have ever seen of this form of dislocation, I had seen two examples of ancient posterior misplacement of the shoulder which had existed several years. The present case afforded me an excellent opportunity for observing the character of the injury, the patient being exceptionally spare of flesh. So rare is this form of dislocation of the shoulder that Astley Cooper records that during thirty-eight years there were only two reported as having been treated at Guy's Hospital, London.

to the standard three minutes it is my habit to add a minute for every month. This amount of time has been sometimes found to be more than what was required. It is my invariable habit to request another person, as well as myself, to check the time. Of all the recent dislocated shoulders brought to me for reduction, I cannot recollect one in which also a fracture of the surgical or anatomical neck of the humerus was diagnosed. Many of the ancient displacements examined and attempted to be reduced by me were found to be complicated with a fracture of the upper part of the humerus, and these I always failed to reduce. In no other instance have my efforts at reduction failed. It is my conviction that, in the majority of cases of disarticulated shoulder-joint, complicated with fracture of the humerus, the complication was added by the artist during his efforts to correct the displacement; and many cases are known to me to have been so injured during attempts at reduction. It is also my conviction, that very many cases of fracture of the neck of the glenoid cavity have been mistaken for dislocation of the shoulder-joint. The last two expressed opinions of mine, if correct, relegate the occurrence of dislocation of shoulder, with fracture of the upper part of the humerus, to the category of very improbable injuries.

My experience teaches me that at a period before anæsthetics were commonly used during the reduction of dislocations of the shoulder-joint, injury to the axillary artery, the formation of traumatic aneurism, injury to the axillary plexus of nerves

and consequent palsy of the upper extremity and fracture of the humerus were not uncommon mishaps, that followed after attempts to reduce dislocations of the shoulder. My experience, since the more general use of anæsthetics, is, that while injuries to the artery or nerves have become rare accidents, yet fractures of the humerus, and even of the ribs, during reduction, are as frequent as ever they were. This has been my observation, and these mishaps, are explicable by the supposition that, while the force employed in reduction has by anæsthetics been much curtailed, yet some of the errors of the ancient methods of reduction are still practised, these are the employment of too much leverage and insufficient extension. I will admit that leverage, at the right moment of the operation, shortens and, in ancient dislocations, is very necessary to terminate the operation.

I have never had the ill-luck to overlook the existence of a dislocated shoulder-joint. In fractures of the neck of the glenoid cavity the appearance of the shoulder sometimes very much resembles that of simple dislocation into axilla; but there the resemblance ends, as the after-treatment has to be very materially altered. In the after treatment of dislocations of the shoulder, mere fixation, until all signs of unsoundness are gone, is allsufficient, but in treating fractures of the neck of the glenoid cavity, a plan after reduction has to be adopted which thoroughly pushes up and maintains in position the humerus and glenoid, which tend to descend from their normal position, being pulled down by the weight of the upper

extremity. If this injury be overlooked and both diagnosed and treated as a dislocated shoulder, a restoration, after the lapse of three to four weeks, so far as my experience has taught me, is impossible. Symmetry has to be dispensed with, but the utility of the part is not much affected by the surgeon's oversight or mistake, as, in the majority of these cases, even when diagnosed early and treated skilfully, there remains some unavoidable defect.* In one case only has it been my ill-luck to diagnose, as a dislocation, that which was a fracture of the glenoid cavity, and my error lead, though it need not have done so, to unpleasantness.

Three years ago, about ten o'clock in the evening, Mr. A., farmer, residing a few miles from this town, was brought to my surgery suffering from an injury to his shoulder, the result of a fall. I think it was from a two-wheel trap. Before he was undressed his deportment inclined me to suspect dislocation of the shoulder. As soon as he was unclothed I observed that the part was intensely swollen and painful, and that the contour indicated a dislocated shoulder. On placing my fingers in the axilla and noticing the inclination of the shaft of the humerus, and that the elbow could not be brought in contact with the side, I concluded that I had before me an instance of dislocated head of the humerus into axilla and I performed the operation of reduction, which altered the inclination of the humerus so that the elbow lay at ease in contact with the trunk. I now treated the case consistently with my diagnosis, the consequence of which was that the weight of the unsupported upper extremity dragged down the humerus and glenoid from the normal position and, at the end of three weeks, when all tumefaction had subsided, I found my error and that my patient's limb would recover with defective restoration. I had no fear as regarded its ultimate usefulness if my advice was followed, though I had erred in my diagnosis.

A defect of restoration of this kind is always very apparent

* See Treatment of Fractures of Neck of Glenoid.

just after a thorough subsidence of the swelling, and until the part has become sound again, but then it would gradually begin to present a contour nearer normal.

No doubt the patient noticed the very evident deviation from the symmetry of his injured shoulder, as on his visit about eight weeks after the accident, he informed me that he had consulted another surgeon, who had informed him that the shoulder "was out," *i.e.* that I had failed to reduce a simple dislocation; he would not inform me who the extremely intelligent surgeon was, but I was able, I believe, to surmise who he was. Conscious that the dissenting surgeon was wrong, and more so than myself, I made a proposition. I offered to demonstrate to the dissenting practitioner his error, but, to my regret, I never saw the farmer again; possibly, nay probably, his arm was hauled and wrenched until it was useless and worthless, the result of and this scandalous treatment placed to my credit.

Any surgeon, who might read my remarks as regards the use of anæsthetics for the reduction of dislocations of the shoulder, would know that my opinion is not the common one in these days, and he would naturally expect fair reasons in support of my divergence of practice. Indeed, it is only very rarely that I employ an anæsthetic as an aid in the replacement of any joint. The best evidence that I can adduce in justification of my omission to employ anæsthetics for this purpose, is the fact that, on very many occasions, my efforts were in a few minutes successful after one, and, in some instances, repeated attempts at reduction by others had failed, whilst the patient had been long under the influence of an anæsthetic, and such is my confidence in the plan of reduction, that if the dislocation, when brought to me, be one which has existed not longer than forty-eight hours, the operation is proceeded with, though the patient is still invested in his clothing.

My success cannot be attributed to any one of the many sharply defined modes of performing reduction, as I know of none possessing any special merit. The credit of success, if there be any, is attributed by me to a method of reduction, which is a compound of the salient points of several of the methods which have been practiced by my predecessors in surgery. Dislocations of the shoulder-joint have been reduced in time long past, by every method now known; most of these are referred to in our literature, and probably there have been methods practised which have never been recorded. Before proceeding to give my reader the details of my method, I wish to express the opinion that, when a displaced shoulder-joint is reduced with the audible snap report, it has been successfully but not very skilfully done. During the twenty years, dating from the commencement of my curriculum in 1855, nearly all dislocated shoulders seen, replaced or performed by me, were on reduction, accompanied by the snap sound. But from better knowledge, and so from the employment of more tact and less physical force, the snap, at the moment of reduction, is but very seldom felt. This sound to me indicates that there has been used in reduction too much leverage and too little extension, making the operation more painful. I witnessed and assisted, in the year 1857, at the reduction of a dislocated shoulder of a very powerful subject after twenty-two months displacement. The operation occupied one hour daily for three days. The patient was accompanied by his friend, a dentist, now living in my neighbourhood. I have

may

X never reduced one myself that existed more than ten months, In every instance of unreduced fracture of the neck of the glenoid with much deformity presented to me after the fourth week, I have failed to completely restore the part. I know of no means of making a differential diagnosis between an ancient dislocation of the humerus into the axilla and a fracture of the neck of the glenoid, if much deformed, beyond the information the surgeon can gain by an attempt at reduction. The information I referred to is the fact, that as soon as the patient's scapula have been immovably fixed, and when the next step in the operation for reduction, that is powerful traction by grasping the patient's arm is made. In pure dislocation the extremity feels, decidedly, to relax in the direction of force. But when the other injury exists the rigidity is just as apparent as the extensibility of the former is perceptible.

As evidence in support of some of my foregoing remarks, I shall relate a case, typical of many ancient dislocations which were reduced by me. The reader will notice, that the time occupied in the replacing, much exceeded that which has been before mentioned as sufficient, but the operation was performed nearly ten years ago, when my details of procedure were not so suitably chosen. However, I have selected this case in illustration, because most of the minutiae, which now complete my operation for reduction, were not then employed by me, also because the displacement was reduced without anaesthetics, after repeated attempts at reduction in combination with them

had failed ; further, the patient is now living, and there exists a photograph of the part injured, taken immediately before reduction ; and lastly, because one of the primary attempts at reduction was superintended by a surgeon who, I know, is very skilful in this operation, but tends in his practice to the use of motionary manipulations without any traction, when reducing dislocations of both shoulder and hip-joints, which is, in my opinion, a fairly trustworthy method with an anæsthetic, but is far from being so if it is not employed.

Mr. Whiteside, now residing at the corner of Hawthorne-road and Benedict-street, while engaged in a bakery, dislocated his shoulder. He went immediately after the accident to a public hospital, where, while he was under an anæsthetic, the house surgeon attempted to reduce the displacement but failed. On the following day he repeated his visit, and was under the influence of an anæsthetic for six hours, while several of the honorary staff surgeons were superintending and assisting at attempts at reduction, but with no success. After this the patient remained contented for six weeks, when he decided to seek for aid from a popular practitioner in Manchester, but on his way to the railway station he altered his intention and came and consulted me. Stipulating that he should first procure me a photograph of the part, I promised that an attempt at reduction would be made by me, which was fulfilled next day. The dislocation was reduced in twenty minutes.

Directly after this operation, I had the advantage of exchanging opinions regarding it with the surgeon who mainly directed the last of the attempts at its reduction under chloroform. Although the patient was a powerfully muscular man, the time occupied in reducing the displacement was excessive. I believe it ought to have been done in five minutes ; and it was the last ancient dislocation in which my efforts at reduction consumed an excess of time before succeeding. I could relate very many

such instances as the foregoing case, but their identification is not now possible.

I can recollect the following :—

A custom-house officer consulted me about a dislocation of the shoulder of two months standing. Attempts had been repeatedly made under chloroform to reduce the displacement but with no success. My efforts were successful in four minutes.

A lady, wife of an attorney, residing on the Cheshire side of the Mersey, was brought to me when suffering from a dislocated shoulder ; the patient was extremely stout, which had caused the dislocation to be overlooked for a time, but, being finally detected, efforts at reduction under chloroform were made but failed. The dislocation was a recent one, and I easily reduced it within time.

Another lady, the wife of an independent gentleman, living near Hoylake, was brought to me suffering from dislocated shoulder-joint ; attempts at reduction under chloroform had failed. This was also reduced within time, as it was existant only about a week.

A multiplication of the reports of cases such as these answer no purpose except to advertise the reporter, consequently my next effort will be to try and convey such information to the reader the details of my manner of reducing dislocations of the shoulder, so that others can test the probable correctness of my teaching.

Many of my modes of reducing dislocated joints are very likely to be objected to by surgeons, who give more importance than I do to observations made during experimental reductions performed upon the dead subject. When we are considering the treatment of fractures, dislocations, diseased joints, or other ailments my constant protest holds good, that we are much inclined to ignore the fact that we have to practice upon

living beings. Vitality is a factor that in most instances must totally alter the condition of the material we have to work upon.

To Reduce a Dislocated Shoulder.—To succeed always in reducing dislocations of the shoulder, and to gain a deserved reputation for success in this operation, the surgeon ought to attack the work so that there shall be from first to last no interruption of progress, or what appears to the patient a change of tactics and prolonging of pain, involving both a loss of time and of the patient's confidence, which may, if an interval be introduced, cause the sufferer to insist upon a suspension of the proceeding and consult others. The preceding remarks are, in my opinion, worth considering. As the surgeon can build a solid reputation only upon the many consecutive, not isolated, instances of skilfully performed manipulations; consequently, he ought to select the mode of operation which is most trustworthy as apparent from the uniformity of successful results.

The surgeon should advance to the work, bearing in mind that the initial manipulation is in character the same for this joint as for all others, namely, to aggravate the deformity indicative of the lesion. Some surgeons would try to succeed by merely increasing the deformity, then leading the extremity in the direction of least muscular resistance, perchance to succeed, probably to fail; and, when we recollect that many a dislocated shoulder has been reduced by the act of an attendant undressing the patient

preparatory to operation, my attributing the occasional success of the foregoing method to a "perchance" is not unreasonable, especially as the plan is not much different from the manipulation of unrobing the patient.

During the operation several forces have to be acting, one fixing the scapula, another, without intermission, is tracting the humerus to which also a slight swing motion is given and finally, a slight leverage. Any inefficiency of fixation causes also a loss in the power of traction. If fixation of the scapula be defective, traction by the humerus only diffuses the force upon the whole trunk. The next rule that should guide the surgeon is that, once he has commenced to use traction, he should have his force-assistants so under command that, no matter what variation of direction the humerus has to undergo, the traction must not be intermitted for a moment until the operation is complete. There is no mechanical device I know of that can aid us better than intelligent assistance. I believe the thorough fixation of the scapula, which can seldom be dispensed with, this, as it interferes with respiration, makes the employment of an anæsthetic very dangerous. Death has been many times reported when reduction of the shoulder-joint has been attempted, even when the scapula and trunk were very inefficiently fixed, and the patient was in the supine position. The supine position is a very ungainly one when the surgeon has an ancient dislocation to reduce.✕

As a help to the reader to understand my ideal cases of reduction of dislocated shoulder, there is given in plate IV.

a diagrammatic plan of the operation. In plate V. is given an illustration of the reduction of a recent dislocation when all the resources at my command are applied, as when the operation is performed in my surgery. In plate VI. is shown the act of reduction of an ancient dislocation under the like circumstance. Plate VII. represents the act of reducing a recent dislocation under disadvantage, as at the patient's home. An ancient reduction I would always aim at performing with all the resources at command. In plate IV. there are five diagrams in each of which the letter A represents the upper extremity; the letter B glenoid cavity; D the acromion; D N O the acromion, glenoid cavity and portion of the chest wall. C S P is a plan of the crutch of fixation attached to an immovable chair in which the patient sits as seen in plate V.

The surgeon, finding the existence of a recent dislocation of the right humerus into the axilla, requests the sufferer to sit in a chair which is a fixture attached to the floor of the surgeon's consulting room. To the chair is attached a ring crutch marked in diagram CSP, the ring admitting of elevation or depression so that its centre may correspond to the centre of the glenoid cavity B. Through this ring the extremity A is drawn until its further progress is arrested by the ring CS coming in contact with the acromium and chest wall D N. The surgeon now requests two or three powerful assistants to apply all the traction they can exercise in the direction of A B, fig. 1, plate IV., continuing it for about half-a-minute, while the surgeon stands behind the patient with his right hand supporting the head of the humerus and with his left hand pressing the acromion. At the expiration of this half minute he directs his assistants, who are applying unremitted traction, to lower the extremity to the position A B shown in fig 2, and as it is descending to this plane the surgeon instructs his assistants to give the extremity an anterior and posterior swing motion, so that the head of the humerus may be made to seek for the opening in the torn capsule. This proceeding occupies another half-minute. If at the end

of the minute the surgeon, who still has his right hand under the humerus and his left on the acromion, has not detected reduction, he decides to add a little leverage, and instructs his assistants to further depress the extremity, while at the same time traction is well maintained and the swinging motion continued, until the extremity is in position shown at A B in fig. 3. Now the surgeon diagnoses reduction, and the limb is appropriately fixed.

The next patient, the surgeon examines, he finds to be one who is suffering from a dislocation of the right humerus into the axilla, which has existed six months. The procedure followed in reducing the recent dislocation is repeated slightly modified:—more manual force is requisitioned. The surgeon no longer trusts to his personal control of the acromion, but makes this the duty of a special assistant. He allows the humerus when it comes to the position A B fig. 3, to rest on the lower section of the ring at S, which is suitably padded so as to avoid injury to structures; while the acromion is forced down by the special assistant during the operation. Another modification is introduced in the reduction of this ancient dislocation, viz., an assistant, grasping the patient's heels, suspends his legs horizontally, thus rendering the patient more helpless to resist or derange the plan of operation. Only in the reduction of an ancient dislocation does the surgeon ever employ such an amount of leverage as it indicated when the extremity is under traction in the position A B fig. 4, and this only when he is confident that another minute's employment of force will complete the operation. After the diagnosis of the reduction of the dislocation, great care is employed while the extremity is withdrawn from the ring, not to abduct it from the position A B fig. 4 lest displacement should recur. As soon as the extremity has been withdrawn from the ring, the surgeon flexes the patient's right elbow and from behind passes his left arm across the patient's left chest wall, grips the elbow of the injured extremity, and draws it across the right chest into the position A B fig. 5. Now the fulcrum H fig. 5, representing the surgeon's wrist is withdrawn, which the surgeon placed in the patient's axilla as soon as the extremity had been removed from the ring C S and a pad of corresponding bulk is inserted in its place.

In the after treatment of ancient dislocations, it is important (and the longer the dislocation has lasted the more important it is) that the axillary pad should be in bulk rather less than a wrist and, like it, cylindrical in form. The error is too often

committed of placing an axillary pad which is more a thick plane than a roll, consequently the slight leverage, to be gained by fixation with a roll, is lost and the dislocation possibly recurs even after good reduction. When reducing ancient dislocations the method is essentially the same as that which I employ when reducing a recent one, the actual difference being that the several stages are prolonged as to time, and more force is employed; for example—in a case of ancient dislocation of six months duration, there would be expended upon the first position one minute with traction. In the second position two minutes, with traction and swing motion, in the third position same force for two minutes, in the fourth position extra leverage is added for a minute. Generally the third position is the one in which most time is expended, as it is that in which we can gain most progress and force can be employed with safety. It is very advisable not to spend much time in exerting leverage with the traction force in the fourth position, as it is there that injury to nerves or vessels, or even fracture of the humerus may happen. The surgeon's motto during the operation should be unremitted traction on an immovable fixed point.

Simulated Reduction of Fracture of the Neck of the Glenoid Cavity when not restored soon after its occurrence.—If within two or three weeks after this injury the surgeon commits the error of diagnosing a fracture of the neck of the glenoid cavity as being a dislocated shoulder, his attempts at reduction and subsequent treatment may almost neutralize the

evils attendant upon his error of diagnosis. But should this injury be diagnosed as a contusion only, and three or four weeks elapse before the surgeon detects his mistake, he ought to perform an imitation of the operation applicable to the reduction of dislocation of the humerus into axilla. The imitation consists in subjecting the structures, connecting the upper extremity to the scapula, clavicle and trunk, to force sufficient to strain them, and then for several days maintaining further moderate force by leverage with a medium size axillary pad. The parts from possessing vitality will gradually accommodate themselves so as to permit the upper extremity to lay close to the chest so that the most obvious deformity, abduction, is not perceptible, and a position is gained for the extremity which enables it to come more under the patient's will and thereby acquire a power and usefulness it otherwise could not have gained.

In attempting the amendment of an ancient fractured neck of the glenoid cavity with much abduction, simulating a dislocation of the head of humerus and to avoid any injury or failure, it is important to bear in mind that, during the operation, the initial act of reducing the deformity will be followed only by a slight amendment. It will be, during the exercise of unremitted and moderate leverage with the axillary pad, that the major part of the abduction will be corrected, and an alteration, otherwise impossible, will be effected by the force daily employed as after treatment to the operation, yet, withal, the initial operation is as essential to success as

the continuous leverage that ought to follow it.

In plates VIII., IX., and X. are given illustrations of the resulting approach to symmetry that can be gained by an attempt to amend the seriously crippling deformity that sometimes remains after a neglected or overlooked fracture of the glenoid cavity. They are copies of photographs taken many months after treatment. Both of these subjects were seamen.

The first,

C. J. Parkinson, aged 25 years, during a sea voyage fell from the ship's rigging and sustained a fracture of the neck of the glenoid cavity of the shoulder. There was extreme deformity much simulating dislocation of the shoulder-joint. The accident occurred several weeks before arrival in port. On landing, he consulted a specialist and other surgeons in this city who assured him that the defect could not be amended, and that it was a dislocated shoulder-joint. He consulted me four months after the accident. On examination of the patient, I was satisfied that the defect was indicative of fracture rather than dislocation, and proposed to the patient that he should permit me to amend the defect and, should I on trial find that my diagnosis was incorrect, to reduce the dislocation. To this proposal he consented, and after the first two minutes of the operation I was convinced that my diagnosis was a correct one. My effort at amendment was so successful that the arm which had poked out inconveniently like a ship's "yard arm," was brought almost in contact with his chest, and its usefulness very much increased. Twelve months after the termination of treatment he fell from a tricycle and fractured the humerus and the photographs from which plates VIII. and IX. were copied were taken twelve months after the last accident. This patient was able to resume his vocation as seaman.

The patient, of whom plate X. is a portrait, was a seaman who also, during a sea voyage, sustained a fracture of the neck of the glenoid cavity. When he consulted me the deformity was extreme and so crippled him that he could not get any shipmaster to accept his service as sailor. The operation of simulating a reduction so far improved the part, that after three months treatment, he was able to resume his duty on board ship. Casually meeting him in the street nine months after the operation, he

assented to my desire that he should let me become the possessor of his portrait, so as to shew the effect of treatment. Plate X. is a copy of the quarter photograph which is in my possession.

Recurrent Dislocation of the Head of Humerus.—A surgeon is sometimes consulted by a person who suffers from recurrent dislocation of his shoulder, probably arising from imperfect repair of the rent made in the capsule of the joint when his joint was primarily disarticulated. This repetition of displacement may happen from very slight force if the upper extremity be so posed that the head of the humerus is caused to bear upon the locality of the rent made in the capsule.

It is very remarkable that, in most of the cases of recurrent luxation of the shoulder-joint, we seldom observe any signs of subacute inflammation to follow the injury as we do when the reduction of a dislocated shoulder is followed by a permanent replacement. This is a fact which I have taken advantage of and employed as my guide in advising those who suffer from the annoyance of recurrence of displacement.

My advice is to impress upon the sufferer that, whenever his shoulder "slips out" he should at once get it replaced, but also exercise it as much as possible and, if after a week's employment of the extremity, night pain and tenderness on manipulation of the shoulder are not produced, then to supplement exercise by inviting a friend with closed fist, to daily pumel the joint "fore and aft" until the wished for inflammatory signs are felt.

The reader will here note that my advice appears as though contradictory to that given in some of the preceding pages, but it really is not so. The treatment is only that which is reasonably suited to the correction of the delayed repair of fracture. The advice here tendered, as proper for the relief

of recurrent displacement, is not suitable for the treatment of an ordinary dislocation, for the same reason that the treatment for delayed repair of fractures is also unsuited for the treatment of a recent one. The physiological condition of a recent dislocation or fracture is radically different from that of recurrent dislocation of a joint or of a delayed repair of fractured bone. The first two conditions are twin relations, and we dread too much action during repair, but in the last two conditions we want more reparative action.

The Cause and Treatment of Delayed Union of Fracture of the Humerus.—Two causes only are known to me which lead to a diminished reparative tendency, one being a low vitality in the part injured, and the other being that the points of fracture are not in contact. The first one may exist from the vitality of the injured part being below the average standard, though, the sufferer should appear quite up to the standard of health: it may exist as part of the constitutional state or be the effect of mechanical action. For example: the arm having been very properly, carefully compressed by splints and bandages to secure the best restoration of symmetry may interfere with nutrition. There is also another mechanical cause that, in some degree, tends to delay union, that is, the locking of the elbow-joint with a splint thus increasing the leverage acting on the fracture and so decreasing the power of the splints, that span over the fracture, from maintaining the bones immovable. Another mechanical action, which does not favour union in fracture of the humerus, especially if any portion of the bone has

been removed or has necrosed, is the use of extension either alone or in combination with other mechanical means for staying the fracture. And so in treating fractures of the humerus, I have found ; that extension can well be dispensed with, that the splints should extend only the same distance below as above the site of fracture, and that the elbow, forearm and hand should not be so fixed that the mobility of the elbow-joint is completely checked during treatment.

Attention to the foregoing rules, I think, help to minimise the mobility of the fractured points and to aid repair. To my advice "that the splint should extend only as far below as above the site of fracture," some surgeons may advance the objection that the rule cannot be followed, in case where the humerus is fractured through its anatomical or surgical neck, or where the fracture is in the condyloid portion of the humerus. This objection would not be valid in my practice, as I do not apply splints to these fractures. For the treatment of fractures of the anatomical or surgical neck of the humerus, the slinging of the arm by the wrist with a gauge halter,* until repair has been consummated ; I believe to be sufficient, but to this slinging, strapping may be supplemented without harm being

* By a "gauge halter," I mean a cord of calico or a pocket handkerchief, which is passed around the patient's neck, tied in front so that the loop around the neck is too small to allow it to be slipped over the head, the ends are then passed down and around the wrist, which is hauled up to a selected position, when the tails are passed around the wrist and another loop formed which, when completed, will not permit the hand to slip through ; next, the junctions of both top "neck loop" and lower "wrist loop" are sealed with wax so that any interference with them can be known to the surgeon. This "gauge halter," when employed by me, is never varied or undone until the patient is cured. It is a very simple surgical appliance, but one

done. For fractures of the condyloid portion of the humerus it is, after due consideration and observation, my firm conviction, that slinging the arm by a "gauge halter" only, is the acme of treatment.

Supposing a case of delayed union, the fracture being that of the shaft of the humerus and having been artistically treated for eight weeks but with only very imperfect progress, the surgeon, now having no fear of much displacement of the fracture, so arranges his apparatus of fixation that only parts, far from the site of fracture, are gripped and so fixed that the circulation at and, if possible, beyond and around the site of injury are maintained œdematous, a procedure which he follows for two or three weeks. But should he still notice that repair is not progressing to his satisfaction, he temporarily reduces the œdema either by an elastic or calico bandage, and applies percussion to the site of fracture avoiding important vessels and nerves, after which the treatment by damming is resumed and daily watched, and percussion perhaps repeated with proper intervals until repair has been urged on. Plate XI. illustrates his mode of surgical dressing.

The urging of repair by damming, sometimes with, and at other times without percussion, has given me much satisfaction. So successful have the procedures been during these last thirteen years that I can only record three cases of failure, or which I had to operate on with knife and saw, my last operation of direct interference being performed this year.

The Treatment of Injuries of or near to, and disease of, the Elbow-Joint.—If perfect rest of this or any joint, after injury

which I frequently employ to the exclusion of all other mechanical aids, I am very wary that none but myself meddle with it, and examine periodically the arrangement of the cord part, especially if the case is not doing well. A wily female deceived me on one occasion by cutting the gauge behind the patient's neck and stitching it up again after changing the patient's linen. After my detection of her, I have always examined the cord behind the neck, and have since caught several offenders.

or during disease, were attainable without any interference by art, then we should nearly always have perfect restoration and cure.

Of the lesions of the large articulations, that of the shoulder-joint can be treated upon lines which approach nearest the foregoing unattainable repose; consequently defects of the shoulder-joint recover from injury and disease quickly in comparison with lesions of other articulations. Rarely do lesions of the shoulder progress so unfavourably that excision or amputation is required, as is very evident from the fact that our surgical manuals devote but only scant space to the etiology and treatment of lesions of the shoulder.

Next in order of those joints, which can be treated with near approach to the ideal manner, comes the elbow-joint. It is marvellous to me how sound and useful elbow-joints can become after suffering severely from either injury or diseases. Since the excision of joints has taken a prominent place in modern surgery, we are constantly informed of the wonderful results obtained by excision of the elbow. I admit that many excisions of elbow-joints are successes, taken as cures; but also maintain that there are very few indeed which after excision, will equal in usefulness a cured, even if ankylosed, elbow-joint.

Some months ago being present at a meeting of a medical society, when the treatment of diseased joints was the subject

of the evening, I listened to each speaker giving his personal experience of excision of the elbow-joint.*

One gentleman, who addressed the meeting informed us, how successfully he had excised an elbow so that the patient, by wearing a complication of straps and steels, could use his arm. Another informed us of his case of excision : that the patient was able to wheel a barrow, carry a basket, in fact to perform any action requiring the upper extremity to be in a dependent position. Others followed, each with their quota of probable sound cures, but all granted that there remained some limitation of usefulness; not a single case then referred to nor any case of excision of the elbow I have met with, can equal in usefulness a diseased elbow-joint which has been truly cured. Even if ankylosis remain, the part, if sound, is less liable to relapse or give future annoyance to the patient than it would be after an excision however successful. I have never excised an elbow-joint, and have only twice had to regret not having performed the operation. The sufferers were adults, one suffered from phthisis and, living far away was thus too rarely examined,—this case ended fatally, and had been probably a case for amputation. The other case was excised by a metropolitan surgeon and did well after the operation; I had not seen him for several months previous to the operation, but when last seen by me he was not progressing favourably. During last year I met a surgeon in consultation over a patient, about

*No matter where upon earth excision is being discussed, surgeons are sure to be ready with a stock of excised elbows in support of excision generally.

60 years of age, suffering from diseased elbow-joint. The joint was progressing well, but slowly, to recovery, but the patient's health was not good. The gentleman whom I met in consultation advised excision of the joint, my advice being either amputation or to leave the case to progress to recovery ; excision was performed and the patient died.

Excision of joints, by surgeons in this country, are becoming a less frequent operation during these last ten years, and, it is with some satisfaction, I notice that the change of practice began with the hip-joint, against the too frequent excision of which I was the first to protest when advocating what I still believe to be an improved mode of diagnosing and treating hip-joint disease, and I am not without hope, that my contribution towards the conservative surgery of the elbow-joint will show that the reasons, that can be given against excisions of the hip, apply with tenfold cogency against excisions of the elbow-joint. My interpretation of surgical opinion, at the time I am now writing, in regard to the excision of joint lesions can be easily verified by a reference to a "Manual for Students," published this month, on diseases of the joints.* The reasons, given in it against excision of the hip are the reasons which I have four times published since 1875—with this difference,—they are better advocated in the "Manual." The author, under the article on "Excision of the Elbow," at page 314, remarks, "The objections that apply to the

* Disease of joints, Howard Marsh, Esq., F.R.C.S., Cassell & Co., 1887.

operation in the case of hip and the knee are not in force here." It is possible that the author of this "Manual" may have arrived at his present conclusions, concerning hip-joint excision, independently of any thing I have ever written, though this is rather improbable, as, on a perusal of pages 113-4, I find a very able compilation of my theory of rest also four times published since 1875.* Yet, on reading the paragraphs of the "Manual" devoted to treatment, the methods employed are not in harmony with the principles of rest which he so exhaustively lays down in pages 113-4, and the opposite of which he taught for a long time after the appearance of my contributions to the subject of articular disease which can

* At page 112, under "Treatment," the author prefaces his exposition of rest thus "the opinion so forcibly held by Brodie, Hilton, and Paget." This is not correct, for from a perusal of pages 157-8 of Brodie on Diseases of the Joints, fifth edition, 1850, it can be gleaned, that Brodie qualified the use of rest. So again, on reference to Paget's Clinical Lectures, second edition, 1879, pages 97 and 100, it will be found that to rest is attributed some evil. Hilton was the first, I know of, to confidently prescribe rest, without subtraction, for articular and other lesions, and I here reproduce from his work, "Lectures on Rest and Pain," third edition, page 320 and 321, his remarks regarding rest for diseased joints: "Many persons, however, believe that the joints, their soft parts especially, being unused and kept in restraint, although not at the time actually diseased, may suffer irreparable structural change or deterioration by long-continued rest, and that healthy joints may become ankylosed as the consequence solely of that rest. This opinion is advanced as an argument against the employment of long-continued rest to diseased joints. Now, I doubt the soundness of this conclusion; nay, indeed, I believe that it is essentially untrue." This quotation is a striking one, as both Brodie and Paget's works contain paragraphs just the opposite in teaching to this. The edition of Hilton from which I have abstracted this paragraph is edited by W. H. A. Jacobson, F.R.C.S., and the editor, in a footnote, dissents from Mr. Hilton's opinion as given in the above quotation, supplying, in support of his difference, evidence which, by my interpretation, strongly confirms Mr. Hilton's opinion—see "Contributions," part II., page 25. To Hilton only belongs the well deserved credit of first expressing the fact that, from rest, we need not subtract anything, and that his successors have left to them only to try and better apply, than he did, his principles to practice.

be seen by consulting the *British Medical Journal*, July 28th, 1887, page 99, where the author of the "Manual," describing the Davis-Taylor-Sayer treatment of hip disease, speaks of it with approval, though a method by which diseased joints were supposed to be curable without rest. It is quite possible that whatever coincidence there is between the author and myself is accidental; that he has been running me hard and by no means a debtor is possible, otherwise probably we would have found somewhere in his volume a note of the debt. From an experience, which quite justifies me in advising with confidence, I recommend that no elbow-joint should be excised if the patient be under the age of fifteen years, and that excision is NOT "the best course under the conditions in which the children of the poor are placed."* No matter how successful the operation may be, the subject of it is placed at a disadvantage in the labour market; and the time expended to gain a conservative cure will be well laid out if the patient lives to the average age. An elbow cured even with the defect of ankylosis, if it be in useful form, will in after life be less noticeable and more useful than if it had been excised.

I do not contend that the foregoing remarks apply to elbow-joints treated in the manner advised in this "Manual."

* An inspection of the reports of the various hospitals devoted to the treatment of children, shows that they have a large percentage of joint excisions. We should have expected this operation to be confined almost totally to the practice in general hospitals, where the patients have not the advantage of youth to help them to throw off their disease.

The surgeons of the past had not divined the infallible symptoms which indicate unsoundness or soundness of the elbow; consequently, this defect of knowledge made, at times, the performance of excision very excusable and unsuccessful. Having now gained this knowledge and having adopted the theory of rest of joints taught by Hilton, and so ably expounded by the author of the "Manual," the next step, which surgeons have to take, is to supplement the efforts of nature; considering, as she does, that friction is the first and most important evil to be lessened, and, what is of very great importance, that while subjecting the elbow-joint to some degree of mechanical rest, we are not combining with it physiological disturbance, so that, while motion has been arrested and concussion hindered, the vitality of the part is not prejudicially interfered with. To gain rest for diseased articulations, giving the word rest the meaning which Hilton attached to it, is the proper aim of practice, and will necessitate a new departure in the surgery of articular diseases. A joint, which is constantly extended by a weight and pulley, or fixed by muscular retraction or compressed by bandaging, cannot be said to be enjoying either mechanical or physiological rest. A joint traumatically injured is presented to us as a structure under temporary shock, having only very lately been in perfect health and ready again to start towards repair, towards which it often progresses under treatment not strictly proper; but a joint, in which inflammation from disease has commenced or for sometime existed, is one in which the recuperative power is

generally low, tending to favour the progress of the disease rather than its retrogression; consequently we have to eliminate from our treatment every item that might interfere with the vitality of the part, such as the circular incasing so much practiced in diseased wrists, elbows, knees and ankles. Fortunately for our patients, the shoulder and hip-joints are too deeply buried, and so attached to the trunk that they are protected from this ill-treatment. The past method of treating diseased articulations has hitherto supplied us with a large crop of elbows, knees, and ankles for excision. In the treatment of lesions of the elbow-joint, whether from injury or disease, the mechanical means to which I almost totally trust is the "gauge halter," applied as before described, sealed and NEVER VARIED in length from the commencement of treatment, until special signs appear, whether that be a short or a long period.

To the use of this mechanical means of fixation of the elbow-joint, there can be urged the objection that it does not hinder its flexion. For some years I used a "rigid gauge halter," thus nearly controlling flexion, but, failing to find any advantage therefrom, I have resumed the use of the "cord gauge halter." The well-known facts that the elbow-joint from muscular action and the weight of forearm tends to extension, and that it will, after a few days, rest well at the extremity of the "halter," and remain so for all practical purposes, and that the patient aids this by an acquired habit of resting it on the gauge, have convinced me that the "halter" is all sufficient. Whatever

reasons, based on a mere mechanical view of the treatment, may be advanced against it, the defects of the "halter" are a good deal more than counter-balanced by its advantages. For instance, both circular compression of the diseased area and disturbance of the circulation and nutrition of the whole limb are avoided. I know that an angular splint could be fixed to the arm and fore-arm, causing at the same time no compression on the diseased elbow, much after my method of fixation in knee-joint disease. But it is very plain, even without experience, that my manner of fixing a diseased knee-joint would not be so beneficial for the treatment of a disease of the elbow, as it would lead to much more interference with the circulation in the arm; and also the form in which we place the elbow-joint with a view to future usefulness, detracts much from the efficacy of a plan of fixing it upon the basis of that employed by me in the treatment of diseases of the knee-joint. A manner applicable to the fixation of one joint is not necessarily so to another. The shoulder-joint when diseased can be efficiently treated and properly posed by merely slinging or bandaging the forearm to the chest, but the hip-joint could not be conveniently treated nor properly posed by mechanically fixing the joint in the manner useful when the shoulder suffers—which would be by flexing the knee so that the heel then approached the ischium, slinging the leg by a halter to the patient's waist, a plan which might hinder flexion of the hip, and even aid recovery, but it would be very inconvenient. Any joint, when the seat

of inflammation, requires the application of the same principle, but the means must differ according to the duty assigned to the joint affected. After trying very many forms of mechanical fixation for the elbow, none, up to now, has given me the satisfaction which the simple "gauge halter" has.

Fracture of the Olecranon.—In the treatment of this injury, I am guided by the principles which direct my practice when treating a fracture either of the patella or neck of the femur, that is, to aim at getting plenty of healthy connecting medium, whether it is to be bone or cartilage; and experience has taught me that this is all sufficient to enable the patient to regain proper use of the part. In the treatment of a fractured olecranon, the first thing which the surgeon has to decide upon is in what position he shall place the fore-arm in relation to the arm, whether the position shall be such that the elbow is in the form of a right angle or near that of one hundred and fifty degrees. Up to a few years since it was invariably my practice to give the elbow the form of a right angle; but latterly I have re-adopted, in simple fractures of the olecranon, the ancient method of giving the elbow the form of an obtuse angle; but, in compound fractures, I retain the elbow at a right angle. I changed my manner of posing the elbow in simple fractures of the olecranon, as thereby I was able to maintain the fractured parts in closer apposition without the aid of any appliance that could interfere with the nutrition of the locality injured,—this position being the most justifiable one in the absence of any probability of ankylosis, and more

consistent with what now appears to me the proper principles of treatment; and, should there be much defect of restoration, the obtuse pose of the elbow enables the triceps muscle to adapt itself so as to avoid any loss of power resulting from any permanent posterior displacement of the olecranon.*

But, in compound fractures of the olecranon, I still believe that the elbow should be placed in the form of a right angle, even though this may tend to separate the fragments and give the patient a less perfect restoration than the placing of this joint in the position of an obtuse angle. If we see a probability of our treatment terminating in ankylosis, this position is a necessary one, in view of future usefulness of the arm. Should, however, the fracture not lead to ankylosis of the joint, then, as soon as it has ceased to be compound, the obtuse pose can be given to the elbow to enable the triceps to accommodate itself to the elongation of the ulna, caused by more or less space existing between the fractured points. Fractures of the olecranon, like similar injuries of the patella, may recover without any or with a slight or with a very evident trace of the injury, and in each case with perfect use of the part. But cases may be met of each of these three examples of restoration, where there may remain decreased usefulness. For example, superfluous callus or an unsound cartilaginous connection may be a hinderance, or the triceps' muscular tissue may neither have had sufficient time nor a fair

* See Part IV. page 51, foot note.

opportunity, being tightly bandaged, to adapt itself to the altered conditions of the length of ulna. Any of these faults may diminish the power of the fore-arm after repair.

To summarize : After having for many years treated simple fractures of the olecranon, with the elbow in the position of right angle, by splints, compresses, bandage and sling, my present method is to sling the elbow at an obtuse angle and to use no local application to the injured part beyond occasional fomentation to diminish the intensity of the primary œdema, and, before it entirely subsides, to encircle the arm just above the olecranon with a strap of plaster lightly applied, with tension just enough to prevent the too early subsidence of the swelling, so that the connecting medium may be plentiful; continuing this treatment six to eight weeks or until a period when the patient's evident gradual regaining of power to use his arm to and from the position in which it was during treatment, and the spontaneous subsidence of all swelling, have convinced me that the connecting medium is sound and able to stand ordinary wear. Should I have to apply means of fixation with a splint, then it is done in the interrupted mode as shown in plate II. Cases are here given in illustration of my practice.

Thomas Kendall, a steward on one of the Atlantic steamers, slipped in the street, June 26th, 1886. Having fractured his right olecranon, he consulted me the evening of the same day. The arm was so slung that the elbow was in the position of about one hundred and twenty degrees, and he was directed to foment, night and morning, the elbow with warm water, and to return every three days for inspection. About two weeks after the injury, July 9th, on his visiting me, I was

informed by him that he must next day proceed to sea with the steamer, otherwise he and his family would have to seek parochial relief as he was in very straitened circumstances. Finding that my patient could not avoid the voyage, we conspired together and arranged that he should dodge the work as much as possible. Cutting away the sling, he was to avoid, as much as possible, flexing the elbow, and he was to keep the part above the olecranon moderately strapped until he returned in the course of four or five weeks. It was explained to the patient that the strapping was applied to hinder the too rapid subsidence of the swelling, and that the latter, in its turn again, in some degree arrested flexion. This patient presented himself to me, with a useful restoration, after a "round" of five weeks and from the time of the accident about seven weeks, and informed me that our plan had so far succeeded that very little notice was taken of his crippled state during the voyage.

About the commencement of 1886, I was sent for and visited a "National" shipwright, residing in Lowell Street, County Road, suffering from a fracture of the femur just below the trochanter and a fracture of the right olecranon. Although there was a slight wound over the site of the injured olecranon, I could hardly class it as a compound fracture. The treatment I adopted for this injury was to bury the elbow in a loosely applied, but plentiful quantity, of medicated sawdust, and instructed the patient to avoid any flexion of the elbow. He was a very intelligent man, and I explained to him my plan of treatment. The result came up to our expectations, the patient regaining perfect use of the arm.

Another case came under my cure this year. It was of a "Liverpool" shipwright. He fell while at work and sustained a simple fracture of the olecranon. The treatment adopted was that of slinging the arm so that the elbow was at an obtuse angle, fomentation with warm water, and, as the swelling subsided, strapping above the elbow. The more the swelling subsided the firmer the strapping was applied. This patient was a man of very dull comprehension and gave me much trouble in treating him, and although the use of the arm was fully regained, the restoration was not so good as it ought to have been.*

Diagnosis of fracture of the olecranon is very easily made, if examined early; but sometimes the limb is presented to the

* If the reader refers to Part VI., pages 58 and 59, he will find there other examples and my opinions in relation to the treatment of the olecranon fully given.

surgeon much swollen, when the œdema so hinders flexion of the elbow that it may be difficult to diagnose, whether it be this injury or that of a dislocated elbow. If the surgeon errs by concluding that the former injury exists when it is the latter and accordingly treats the extremity by placing the elbow in the form of an obtuse angle, he may, at a certain period of his treatment, find that his patient has a prospect of being seriously crippled, and may not be permitted to try to amend his diagnosis.

It is my practice, when in doubt, to put the elbow-joint thoroughly through the manœuvre of reducing a dislocated elbow, and sling it in the form of an angle of forty-five degrees, thus making certain of either a reduction of a dislocated elbow, or of at least a simulation of one, if there has been a misreduction. But, when the tumefaction subsides, should I find that a fracture of the olecranon exists and not a dislocation of the elbow, the fore-arm is reslung so that the joint presents the form of an obtuse angle. The foregoing rule of treatment is defensible upon the ground that we ought to err in the direction of the least evil, as the diagnosis of a dislocation of the elbow, where it is really a fracture of the olecranon, is a mistake to be preferred to the converse. In the management of the last case of fractured olecranon I attended, it was my ill luck to make this error of diagnosis, but the case was not much delayed by my blunder.

It was the case of a man, by trade a plumber, who, returning home in a two-wheel carriage, the conveyance being upset was thrown violently on

the ground, and sustained severe injuries to his elbow and knee. He consulted me some hours after the accident. I found the elbow and surrounding parts intensely swollen and flexion so interfered with, that I felt confident that there existed a dislocation. The supposed dislocation was manipulated and treated as though dislocated, and three weeks elapsed before I detected my error. My treatment varied in consequence—the variation being so slight that the patient never had the least suspicion of any change in my opinion regarding his case.

To Remove Fluid Distension from the Olecranon Bursæ.
—“Every little helps.” We know this annoyance is trivial; and as we know it can be easily relieved by incision or injection, still any other method which appears to the patient a slighter interference, the difference being however slight, is sure to be put down to the surgeon’s better knowledge or skill, and thus often leads to the surgeon’s being introduced to a more important operation. Two forms of hyper-distended bursæ are met with on the olecranon—one containing fluid, the other contains also semi-detached cartilaginous bodies. Bursæ of the latter character must be incised and the loose cartilages removed, otherwise the distension by fluid tends to recur after successful dispersion. Bursæ of the first kind, containing fluid only, are readily dispersed in the following manner.

The patient A, suffering from a fluid distension of the bursæ over the right olecranon, is placed to stand against a wall. The surgeon, standing opposite to the patient, requests him to fully flex his right elbow, and then raises the patient’s arm until it is perfectly horizontal. The surgeon placing his hand on a portion of the posterior edge of the bursæ, encircles that part of the forearm with his finger and thumb so as to compress the contents of the bursæ upwards towards, its now, superior edge, at the same time making pressure, by pushing in the direction of the horizontal line of the humerus, so that the patient’s shoulder is jammed against the wall. At this moment, the contents of the bursæ being forced.

upwards by the grip and compression of the surgeons finger and thumb as well as by the horizontal force which pins the patient's shoulder to the wall, the surgeon deftly brings his firmly-closed right fist with all possible force upon the upper section of the bursæ, and the capsule ruptures at its weakest point, the anterior part; or, should the surgeon dread to trust the descent of his knuckle upon the hard ulna, he can secrete in his hand the "duster,"* which he may adroitly slip into his pocket after the operation, and nobody need be the wiser.

The Symptoms and Treatment of Dropped Elbow-Joint.—

Occasionally it happens that after an injury has become healthy there remains a dropped condition of the elbow-joint, a condition I have already alluded to. It may be also in combination with a drop of the shoulder. The signs of a dropped elbow are that it appears and feels sound with full range of action and fit for use, but the patient, though possessing the ability to extend the joint, has no power to flex his elbow, despite the exercise of some resistance to the act by a second person. Such cases are not frequently met with, still as they are at times presented to us for treatment and have hitherto not been commented upon, I here give my readers the result of my experience, and give the particulars of the two last cases that came under my observation.

Mr. M. Smith, delegate of the Associated Boilermakers of Great Britain and Ireland, brought to me, last year, a Newcastle member, who, six months previously, had fallen and injured his shoulder-joint, from which he was not perfectly recovered. On examination I found the shoulder-joint free from defect, but the elbow in a condition of "drop," which he and his medical attendant attributed to some defect remaining in his shoulder. Various remedies had been tried, and the defect was regarded as probably a permanent one, and which justified the sufferer making an application for the

* The Duster is shown in Plate XI., and is worth noticing, as it has important duties to perform in operations which I hope to describe in future "contributions."

bonus allowed to cases of permanent disablement. The opinion, given by me to the delegate, was that the disablement could be removed by treatment. On being authorized to exercise my skill, I simply "gauge-haltered" the elbow-joint at an angle, rather more acute than B C E, fig. 2 plate XII., and requested the patient to let the arrangement remain so until his next visit in twelve weeks from the time of consultation. On his return, and my releasing the "halter," I was pleased to find that the patient had completely regained the power of flexing his elbow.

John Wollstenholme, 36 years of age, falling into a dry dock, June 20th, 1885, sustained a compound fracture of his elbow-joint, and was taken to an hospital near the dock, where he was so skilfully treated, that when he presented himself to me, on October 15th, same year, the joint had recovered perfect health, yet I diagnosed a "drop" of his elbow-joint. In this case the maintenance of flexion at an acute angle for two months, perfectly restored to the patient the power of voluntarily flexing the injured elbow.

In the last case, the "drop" was a sequel of direct injury to the elbow, but in most instances it is caused by injury to the shoulder. In its mechanical treatment the angle of repose ought to be one more acute than would be advisable to maintain, when treating a diseased elbow, or when "after treating" a dislocated elbow, and the surgeon should make certain that there should be no intermission, by descent from the angle of repose, without his knowledge, and then there should be long intervals between the test periods, each a month. The test of recovery is simply to release the sealed "gauge-halter" and notice if by the exercise of the will only, the patient can hold the arm in the position in which the "halter" suspended it, if so, then a trial of use may be made, but if he cannot do so then resume the fixation. This test is a slight variation from that applied to diseased elbows.

Dislocation of the Elbow-Joint—Certainly no joint in the human subject is so capable of restoring itself after injury or disease as this joint is known to be. I have had opportunities of examining unreduced dislocations of the ulna and radius forwards and backwards at the elbow, unreduced dislocations of the radius forward and outward, distortions from fractures and the ravages of disease, where there remained slight limitation to the function of the joint, fifteen to twenty years after the date of the lesion, and the result of my observation influenced me to attempt to solve how and why these recoveries were so complete after a long expenditure of time without any assistance, excepting what was evidently, injurious, from surgery. I have been so far successful that I am now enabled to supply the reader with knowledge which he can apply to second the efforts of nature and bring about in months a restoration which, if left to spontaneous action, would require years. In reducing a recently dislocated elbow, I mean one that has not existed more than two or three days, an anæsthetic is of no advantage.

To Reduce a backward Dislocation of the Radius and Ulna.—This injury is always presented to the surgeon in the best possible form for reduction, the elbow being extended. All that the surgeon requires to do is to handle the patient with extreme gentleness so as not to excite muscular action, slightly to increase the deformity of extension, make counter pressure and counter extension, then flexing the elbow to feel for the mobility characteristic of reduction.

The following is a sketch of the operation :—

A is presented to the surgeon suffering from a dislocation of the right radius and ulna backward, which had occurred an hour previously. The surgeon, as soon as the patient has thoroughly exposed the part, places him to sit in a chair, and, with his left hand, grips the patient's right arm firmly but tenderly, and in like manner with his right hand he grips the upper part of the right fore-arm and exercises force in the direction of separating laterally the epiphysies of the various bones implicated; then, making sudden extension, feels the act of reduction and the subsequent tendency of the arm to flex.

Case B is brought to the surgery suffering from a dislocation identical with that observed in the case of A, but which had existed two days. The surgeon modifies the operation consequent upon the length of time which had elapsed since the accident and the presence of swelling and of other impediments to easy reduction. The patient is placed to sit in a chair; an assistant is told to grip his wrist and extend the limb, while another assistant makes the shoulder a fixed point. Tractive force is steadily maintained by these two assistants while the surgeon, with his hands, applies counter-pressure respectively to the front of the humerus and to the posterior part of the olecranon; and, in the course of about one or two minutes, his effort succeeds, and the reduction is concluded with but little pain to the sufferer.

The after-treatment of the two foregoing ideal cases of dislocated elbows consists of the application of the sealed gauged halter to retain the elbow at or slightly under a right angle, as in A H, fig. 1, plate XII,* and the local application would consist of a lightly applied calico bandage not less than three inches wide, and not more than three yards in length, moistened with some evaporating lotion; which is continued until the part feels comfortable to the patient and to the surgeon appears to be freed from all traces of the injury.

* In plate XII part III., A represents the neck, B the shoulder, C the elbow-joint, and D the hand.

When this period has been arrived at, the surgeon releases the patient's fore-arm and permits him to make ordinary use of the joint, so as now to undoubtedly test whether the part has really resumed health.

To illustrate the test method as applied to the diagnosis of recovery, let us suppose that during the after-treatment the elbow-joint in the ideal case A was gauged to an angle less than that of a right angle as B C E fig. 2, plate XII, and that, after the surgeon's release of the arm and after a week or a fortnight's employment, the arm, which was treated at the angle B C E, fig. 2, plate XII., has dropped so that it extends and forms the angle B C D or B C F and furthermore that the surgeon notices that the patient, by the act of the will only, can bring the fore-arm from the position F to the position E he can then with confidence maintain that the parts are healthy, are resuming their functions and will regain all its utmost possible usefulness best without further interference from art. Let us again suppose that the case B has been during the after treatment gauged, so that for six or seven weeks the elbow presented the angle B C E, fig. 2, plate XII., and that, at the termination of this period, the appearance of the joint and the expression of the patient induces the surgeon to believe that the effects of the accident have passed away. To test his opinion in this case he releases the fore-arm from the halter, advises the patient to make ordinary use of the joint and return in ten or twenty days for inspection, that the surgeon may get trustworthy conformation of his judgment,

However, when B, at the appointed time, presents himself for examination the surgeon notices that the elbow shows the form of the angle BCD or an angle more obtuse than BCE, the angle of treatment. He now requests the patient, to restore, by the exercise of his will, the fore-arm from the position D or F to E, the one in which it was when under treatment. The patient, however, expressing his inability to do so, the surgeon at once suspects imperfect resolution of the inflammation attendant upon the original injury. Still to make certain his diagnosis of unsoundness, the surgeon tries to flex the patient's elbow, but finds flexion from F to E to be impossible without some little force; which opposition to flexion convinces him that the elbow has not yet recovered health, and also that he has not a case of dropped elbow to treat. He now refixes the arm with a gauged halter as near in length as possible to the first one used, repeating his test for health when he thinks it is proper, after further rest of the joint. The gauge is varied at short intervals, by testing in traumatic cases, does not cause any appreciable harm; it is not so, however, in cases of disease or where the injury has been compounded; in these it is of very great importance that the surgeon should not apply the test for recovery except when from the patient's feeling and the expenditure of ample time he is convinced that the part has long ago passed the last stage of resolution. The foregoing test is an infallible one, and must take its place in surgery. It is an item lessening the value of an extended experience to the practitioner. It is nothing more

than an interpretation of a mechanical expression to be observed, during a pathological condition. It is a reliable mode of detecting the advent of health after injury, disease, reduction, or simulation of replaced elbow-joints.

When reducing any form of lateral displacement of the ulna and radius, complicated or not with fracture of the condyle of the humerus, my mode of procedure is to employ the manipulations advised for simple dislocation of the radius and ulna backward with an external or inward rotation of the fore arm according to the direction of the displacement; and then resorting to the after treatment and diagnosis of recovery which I have just described.

To amend the condition of Irreducible dislocation of the Elbow-Joint.—When discussing this subject the question naturally arises, how late after dislocation can an elbow-joint be replaced? My experience has taught me that a dislocation of the elbow-joint is not an easy operation to succeed in performing if two months have elapsed since the operation. I have succeeded in a few cases when the displacement had existed six months; but I have also failed when the deformity was only three months old, and I have come to this conclusion that the younger the patient the more difficult it is to perfectly replace cases of delayed reduction of this joint. Simulated reduction is possible when perfect restoration is not possible.

In a former "Contribution" I have, when discussing the "Principles of the Reduction of Dislocations and the Treatment of Fractures" referred to simulated reduction of dislo-

cated elbow-joints. * A reader, who perchance may have perused my previous publication, may wish to know "What, after all, is the difference in usefulness between an elbow-joint, which has been subjected to the operation of a simulation of reduction, and another that has been perfectly restored"? My firm conviction is that the result after a reduction of a dislocation of this joint, which had existed three months and then perfectly restored, is not an iota more useful than if the reduction had only been simulated, and that very rarely will the senses of an untrained observer detect the difference between it and a perfect reduction. Whether we reduce or simulate a reduction; the after-treatment and the search for the signs of fitness for use must in both cases be identical. The surgeon, who, by design or through oversight, performs a simulation of reduction, and strictly adheres to the rules of treatment and of diagnosis of cure, as just laid down, may turn out, after a shorter period of treatment, a better looking and more useful joint than another could who, though he had successfully reduced a dislocation, ignored the rules which nature points out and usefulness requires. Nature constantly shows us that when ill health is present, we ought to limit the motion of the part in proportion to the intensity of the disease. Usefulness calls upon us to so pose the limb that, of the muscles controlling the part, the weaker shall be favoured.

During the management of cases of simulated reduction of an elbow-joint, besides seconding nature's efforts at correction

* See Contributions part VI.

and weighing the question of usefulness, we must remember that there is to be taken into consideration an altered relation of parts, that is a joint to be formed, an abnormal anatomy. We want a new hinge of articulation and also muscular adaptation to be brought on by a lengthening of the muscular tissue of the extensors and a shortening of the same tissue of the flexors of the elbow. Besides the giving of useful form, there is, in connection with the propriety of the performance of simulated reduction of elbow, the question, How much motion is likely to be ultimately attained after cessation of treatment? My experience, and it has been an extended one, has shown me that this depends upon the age of the patient. In a patient under ten years, we may expect perfect restoration of motion, and on very many occasions, I have met with in adults also an almost perfect restoration of the area of action to the elbow thus reduced. The surgeon may perfectly reduce or simulate a reduction and there may or may not be ankylosis remaining. Perfect reduction of an ancient dislocation of the elbow gives the patient, in my opinion, no advantage beyond that of a nearer approach to normal symmetry.

Sometime during the "fall" of the year 1886, I was requested to visit dock gateman Grimshaw, residing at 276, Beaufort Street, who was confined to his bed suffering from slight bronchitis. After my entering the house, a person, who opened the door for me, expressed his surprise that I did not give any sign of recognising him, as five years previously he had been under my care, suffering from a dislocated elbow-joint, which had occurred at Chili, S. A., five months before he consulted me. At my request he allowed me to inspect his elbow-joint, upon which it was evident that I had performed a simulated reduction, and that his ability now both to extend and flex the abnormal articulation, and to pronate and rotate

the forearm was only a little short of a normal range of action. He had been or some years performing his duty as sea carpenter on board the S.S. Chancellor of Liverpool.

This case is an example out of the many operations of simulating a reduction of the elbow-joint performed by me, where excellent motion, as well as a useful form, was gained for the elbow of an adult, the patient being twenty-five years of age when he came seeking my advice. For many years it was my practice to perform this operation at once, and without administering an anæsthetic, but afterwards I modified the procedure by giving an anæsthetic. Of late years I have further modified my practice so that now, when operating upon a patient of the adult age, I perform the simulation of reduction, while the patient is under the influence of æther, in two or three stages with an interval of one or two days between each, giving the patient a respite of about three days after the first, and of two days after the second, and then completing the operation. Beyond the saving of some pain I have not found that the administration of an anæsthetic is of any advantage. With or without this accessory, the operation by a single stage would occupy, in a youthful subject, about two minutes, in adults, five. The operation might be performed in a shorter period, but then there would be a risk of detaching the epiphyses of the humerus in young subjects, or of fracturing the forearm in adult life, as by hurrying, whilst amending the form, the leverage which brings about flexion is not sufficiently combined with the tracting force so

necessary to diminish the probability of producing further injury to the already crippled part.

In my practice two facts have influenced me; they are these. The resistance of the injured part to a change of form is very great, and I dreaded having my manipulations supplemented by assistants, who might employ too much leverage, and produce further injury. This dread of assistants led me to adopt the three stage operation of simulating reduction, as thereby the operator required less assistance. With the last described modification I am well pleased, as the task is physically a much easier one for the surgeon to perform, though the patient has to endure more pain, which continues up to the second day after the final stage, still it constantly lessens after the completion of simulation. I shall now give the reader the details of operation, clothed in the form of an ideal case, and also relate the particulars of the last cases I have operated upon.

Mr. A., suffering from an injury to his right elbow-joint, consults the surgeon, who, on examination of the part, diagnoses an unreduced backward dislocation of the radius and ulna, which had existed six months. The state of the part and the possibility of its being amended are explained to the patient, and he consents to submit himself to the skill of the surgeon. The patient is now placed upon a wide bench or table, which is in height about two feet from the ground, through the face of which holes of two inches in diameter have been bored, these holes being situated about six inches from the edge of each side and in the middle of its length. The patient having bared his right upper extremity, is laid upon the table so that his right elbow is opposite one of the holes, through which has been passed a loop of twisted calico, the loop part covered with rubber tubing, forming a roll one inch in diameter, through this loop the patient's right arm is drawn until the loop arrives at and encircles

the lower end of the humerus close to the condyles. Now an assistant draws the free ends of the calico, exercising sufficient force so that the humerus and its coverings are held firmly in contact with the table. Around the patient's wrist is looped another piece of calico which is given in charge to one or more assistants. The surgeon, having prepared the patient for the operation, intends, if possible, to reduce the dislocation, and, if not, to perform a "simulation." Before the operation commences it is noticed that the fixed angle of the elbow is that of 145° . An assistant now gives the patient æther, and as soon as he is properly under its influence, the operator instructs the assistant controlling the loop passing through the table to exercise such force that he keeps the humerus immovably fixed to the table. The assistants, who have charge of the calico attached to the wrist, he instructs to pull vigorously in line with the fore-arm and to keep pulling in this direction, when the fore-arm varies its axis during the operation. The assistants being thus instructed, the surgeon, placing his left hand on the front of condyles of the humerus, with his right hand grasps the patient's right wrist, and then begins to exercise leverage, in direction of flexion, which should be combined with slight rotation. This is steadily persevered in for about three minutes, during which the angle of elbow diminishes to about 100° and, meanwhile, the assistants in charge of the counter extension have varied the direction of their traction to the now altered line of the fore-arm; the surgeon having warned them not to precede him in forcing flexion lest a fracture should occur. The subject of the operation being a well developed person, the surgeon, noticing much structural resistance, decides to defer the completion of the operation for three days. The arm is "gauge haltered" at the angle of 100° , a variation resulting from the procedure. On the elapse of three days the operation is repeated and it is noticed that the deformity which required three or four minutes to be altered from 145° to 100° now requires only one minute to be reduced from 100° to 80° . The after treatment of the case was that applicable to an ordinary reduction of a dislocated elbow, and was continued for about three months, when the test of fitness for use was tried in the manner described on page 94. Plate XIII. gives a delineation of this operation.

Francis McGill, one of the crew of the s.s. St. Mark's of London, when at Chili, September 24th, 1886, fell from a boatswain's chair aloft, and dislocated his right elbow-joint, which I found unreduced January 2nd, 1887, when he consulted me. I performed a simulated reduction of the joint in three stages with interval of three days; the dislocation was extreme and I had to exercise the utmost caution during the stages. The fore-arm

was afterwards "gauge haltered" at an angle of 75° and not varied for three months, after which it was tested for fitness for use, but the test proved disqualification; the test was again repeated every month for three months before I noticed the signs which justified the arm being used. In this case the operation was exceptionally difficult, and the time occupied in its after treatment (six months) was unusually long before it stood the test, which indicated health.

Case C. W. Moody, aged 52 years, residing at 115, Wyth Lane, Salford, in January, 1887, fell and dislocated his right elbow. He consulted me June 10th, same year; repeated attempts at reduction had been made by surgeons and by a celebrated specialist in the neighbourhood of Manchester. In this case the operation was performed with the intent of producing a simulation, as I believed no other result was possible. The operation was performed in two stages with an interval of four days between, and, to my astonishment, complete reduction took place.*

During the performance of the operation of simulating a reduction of an elbow-joint, the rotation of the fore-arm need only be a moderate pronation and supination; the leverage must not be suddenly forced, but rather gradual and steadily maintained; extension, if kept in line with fore-arm, requires the least intelligent control. In the first stage not much progress is made; but, in a second or third, much is easily made—the reason of this last fact—I have already given in a former "Contribution."†

Disease of the Elbow-Joint.—The diagnosis of inflammation of the elbow-joint is very easy to make. The degree is indicated by the fact, that the extent of the range of flexion and extension of the articulation diminishes in proportion

* My inspection of this case, July 25th, 1887, convinces me that the patient will regain almost normal action of the joint.

† See "Contribution," part VI.

to the intensity of the disease ; and so obvious is the defect that the patient, almost always, draws the surgeon's attention to it.

During these last thirty years, it has been the fashion in surgical practice, when an elbow-joint, either from injury or any other cause, has become chronically inflamed, to excise it. It is difficult for me to condemn this practice so long as I believe that the common treatment of disease of the elbow which I know thwarts recovery is practised ; as it is better to excise the joint and thus avoid at least two evils, the disease, and that treatment, which in most instances makes the inflammation chronic and gives the disease its tendency to progress. Elbow-joints have, during the last thirty years, been excised, mainly because they were not supposed to be curable by conservation of the part. Some, indeed, have maintained that an excised elbow-joint is superior to a conserved one ; consequently, they never tried to save the part. Of what value are the columns of statics in relation to excision of this or other joints, if it can be shown that surgical treatment opposes the efforts of nature to conserve the joint. Excision and amputation for diseases of the elbow and of other joints should, in all cases, take their place after rational treatment has failed. I shall now point out to the champions of excision the errors of treatment, after the discontinuance of which, their opportunities for excising will, I believe, be much curtailed. The majority of condemned elbows became so bad by treatment that they appeared incur-

able. Because, first, it is a common practice, particularly if the joint has not suppurated, to employ circular compression both of the joint and contiguous parts when fixing the articulation. Secondly, if suppuration has occurred, the joint is very frequently incised too early. Thirdly, that, if in due time the joint has been incised, drainage is often opposed by the application of filthy and sticky poultices, and of closely woven cotton fabrics, such as lint and linen which do not readily absorb the sinus drain discharge. Fourthly, that hitherto we have had no reliable test for ascertaining recovery: consequently joints, that were improving despite treatment not strictly correct, the surgeon pronounced as fit for use, before the articulation was sound, generally adding to this error, another, the practice of exercising the joint by "passive motion" or "massage."

Several of my friends have expressed their objections to the habits, I have indulged in, of criticising the treatment of others, and have said, "Why not give simply your own views?" My answer was, "that it had been my endeavour to contribute information wanted only to suggest necessary change of practice. The errors of past practice must be laid bare, otherwise the reformed treatment is apt to be leavened with the errors of the old, which would be like a prescription composed of incompatibles."

In the treatment of diseased elbow-joints it is of more importance to set aside the usual practice than even to know what ought to take its place. As regards my main objection, namely, the prevalent practice of circular compression of a

diseased area, it is not a strictly correct practice even when we are treating traumatic injuries; though, from the strong tendency to recovery in these cases, the injury done is more than counter-balanced by the extra fixation gained.* We read in recent publications about intra-articular pressure as being a large factor in delaying recovery from joint disease, yet, the surgeons, who make so much of this mite, inexplicably, have not eliminated the employment of circular compression from the treatment of those joints which they can get at to compress. I believe that motion is the chief evil to be avoided, compression the second in importance, and that we need trouble but very little about concussion or intra-articular pressure. A joint that would be barred from recovery by so slight an impediment as the latter is ready for some form of mutilation, being incurable with conservation of the part. Supposing, however, that intra-articular pressure is as serious an impediment to recovery as some surgeons maintain, then why add to this pressure the circular compression of the diseased area; Loudly, as we hear the evils of intra-articular pressure proclaimed, not one of those, who so teach have had sufficient perception to see that in practice they add to the very evils they wish to get rid of. Plate XIV, fig. 1 is an illustration taken from a manual for the use of students, published in the year 1887,† written by one who is quite able to instruct us in the prevailing practice. As regards my second

* See "Contribution," part VI.

† Howard Marsh, "Diseases of the Elbow."

objection, though advanced here against the ordinary treatment of diseased elbows, yet, I believe it an equally valid objection when any other joint has suppurated. My present opinion is contrary to the one which I held fifteen years ago; but my change of view was gradual and unavoidable, being the effect of clinical observation. Early incision subsequently makes efficient drainage of the joint extremely difficult. About the third objection, the change of practice, which has occurred during the last five years by which poultices, lint and other imperfect absorbant materials are being set aside, shows that what I have always taught regarding the dressing and drainage of wounds was correct. In support of the fourth objection, the reader will find reasonable evidence in a previous "Contribution." *

In traumatic lesion of the elbow, the joint is possessed of so much recuperative power that it can, in most instances, recover despite treatment not strictly rational. In such cases, anyone, whether a trained practitioner or not, who during treatment, if he poses the limb in view of future usefulness and can test it for soundness, will probably produce a good result. It is not so with those elbows which have become diseased either from a neglected injury or where the injury occurs in a constitution already faulty, or when disease has arisen as a symptom of the constitutional state. An exceedingly trivial injury or an extra-exertion of the part is, in an asthenic constitution, a sufficiently exciting cause to produce, if neglected or

* See Part II.

irrationally treated, irreparable mischief in the articulation. Chronic inflammation of the elbow-joint, to be rationally treated, requires, in my opinion, first, to be "gauge-haltered" at an angle of 45° . The arm is "haltered" so that the elbow-joint forms an angle of 45° , for the following reasons:—First, because it is advisable "to place the limb which is under treatment in such a form that of the muscles controlling the part the weaker should be favoured," it so happens that this position is one from which limbs after perfect cure are sooner able to perform their duty. Secondly, should ankyolysis remain to lessen the value of the cure, an elbow-joint fixed at the angle of 45° gives the limb the greatest possible degree of usefulness—minimising a defect.

To treat a lesion of the elbow while the joint was in the form of an angle greater than that of 45° would certainly be wrong, leading to defects, after cure, which were avoidable. The selection of an angle some few degrees less than the right angle would be only inclining in the right direction. If a standard form was always given to an elbow during treatment, it would be afterwards as useful to the surgeon, as a standard screw-thread is to a mechanic. As in the latter, so in the former by comparison, a trustworthy opinion could be given as to whether the patient is well or not. I will now relate an example.

This week I received a communication from 53, Victoria Street, Douglas, Isle of Man, sent by a gentleman visiting the Island, but who was a resident in one of the outer townships of Manchester. He informed me that he was bringing his boy suffering from a disablement of the elbow-joint,

to have my opinion of the defect. On his visiting me I learnt that six or seven weeks previously, the boy had fallen and had injured his elbow, which on being examined by his medical attendant he pronounced it to be a dislocation of the elbow, which he also reduced and afterwards treated during four weeks, at the end of which period, the surgeon in charge of the case, disturbed in mind, by the presence of imperfect action of the joint, took the patient for consultation to a surgeon in Manchester, who prevailed upon his medical attendant to give the patient æther and while he was under its effect to extremely flex and extend the arm and afterwards daily to practise so-called "surgical manipulation" of the elbow. The Manchester surgeon's advice had been followed up to the time I was consulted. As soon as I had finished my examination of the patient's elbow the parent desired to be informed if there was any dislocated or mechanical defect. My answer was, that the joint, was, as regards the bone relation, perfect. The next question he placed before me was—"Then why is the boy not able to extend his injured forearm like the other one"? My reply was that the case had been an excellently managed one up to the fourth or fifth week, at which time, it appeared to me that the parent and surgeon had begun unknowingly to do all they could to hinder the joint from regaining its normal range of action. The next question was—"What would you then advise us to do instead of that we have been doing?" My reply was—"Give the joint wholesome neglect," do not examine it again for a couple of months. I confidently affirm that the patient will automatically take as much care of the joint as it requires. During my conversation with this patient I was satisfied that the elbow had been originally treated while in the form of an angle of 45° and, during this interview, I noticed that, despite injurious manipulations, the patient, by exercise of his will only, was able to much diminish and to enlarge the angle—an infallible indication that no meddling was required.

The joint itself can be painted or anointed with some soothing tincture, care being taken that nothing is prescribed that will cause either irritation or vesication of the skin. Daily bathing of the part with warm water appears to me to have given most satisfaction. Third, should fluctuation be felt, aspiration should not be attempted, as aspiration of the elbow-joint very rarely is a success, and

if tried, may necessitate early incision. Incision should be delayed until most of the tissue confining the liquid collection has been well eroded and the collection is about to break down the last barrier, the skin. This is the time to make a free incision, covering the gap with an antiseptic dressing. The antiseptic dressing which I largely use and have most confidence in, is medicated saw-dust. This delay of incision is not advisable should it be noticed, that the abnormal collection of fluid is increasing in bulk without showing a tendency to point, that there is much pain, and that there is constitutional disturbance showing hyper-distention. I have already given my reasons for trusting to so simple a method of mechanical fixation as the "gauge-halter." Some explanation ought to be given of my omission of counter-irritation from treatment. Counter-irritation of a diseased shoulder or hip-joint does no harm, as they are so well protected. Such treatment of the elbow, wrist, knee or ankles, from their being joints almost subcutaneous, can, may, and, certainly often does aggravate the disease. In times past, when the value of mechanical fixation was not divined, the benefits, that arose from counter-irritation followed because the skin was made so sore, that the patient was further disabled by more pain, whereas now we are able to gain more without the risk of adding to the complaint or tasking the patient's endurance. I very rarely aspirate the elbow-joint. Twice only have I successfully aspirated an elbow-joint; each joint contained half-a-pint of serum and there was no evidence of disease. I delay incisions of

suppurated elbow-joints, because delayed incisions are rarely followed by constitutional disturbance, the explanation of that is very obvious. The sac of a pus collection, which is incised at the time that the skin is about to be eroded, is afterwards connected with the skin by a sinus more or less wide and funnel in shape, thus an excellent drainage is secured. This drainage, it is true, we can imitate, even in early incision, especially in the knee-joint, by stitching the edge of the incised lining of the joint to the edge of the skin incision without. Still, an early incision is much more probable to be followed by constitutional disturbance than a delayed one.*

Fractures of the Fore-arm—Their Management.—Whereas the management of a diseased joint requires much knowledge and little ingenuity to insure success, the management of fractures requires little knowledge and much ingenuity. To successfully treat diseased joints the practitioner has to get trained or gain

* During the month of August, 1887, my friend Dr. Gibney, of New York, visited me staying a short time for pleasure and mutual instruction. While together engaged in clinical observation, a man from the neighbourhood situated between Rain Hill and Huyton presented his elbow for our inspection, desiring to know whether the elbow was "right in its place." As soon as we had examined it, I remarked to Dr. Gibney,—“This is a case of simulated reduction of the elbow-joint, probably of many years standing.” The action of this “imitation” was almost perfect. Turning to the patient, I asked him how long it had existed—He replied, “It is eight weeks since I injured my elbow, before then it was like the other one.” For a moment I was surprised, but I recollected that it was only a reflection of my past experience and a marvellous confirmation of the correctness of the advice I had given in pages 15 to 18 Part VI, and pages 96 to 98 in this “Contribution.” To Dr. Gibney and myself it was evident that the practitioner, who had treated the case, whilst supposing he had reduced the dislocation had also posed the elbow in the form of an actual reduction my vanity caused me to suspect, that I had influenced the practice of my neighbour by what I published in 1886. Early simulation in this case gave what one might expect, a better and earlier result than many a reduction I have performed.

the knowledge by his own experience. To successfully treat fractures the practitioner has only to be a handy man, and with a little experience he soon learns to add small details to his practice that avoid delaying repair or hindering good restoration. For instance, some form of fixation must be used and combined with counter-pressure. An untaught practitioner soon learns that unmethodical counter-pressure converts a simple fracture into a compound one, and if he is a man of much ingenuity, he, at once or at any rate in his next case, corrects his practice by applying the counter-pressure a little distance above or below the fracture, thus hindering the fracture from becoming compound, relieving the pressure over the fracture, which again leads to œdema at the site of fracture and protects the skin from perforation by the bone, and furthermore hurries rather than delays repair. Much as I have contended that surgical manipulation, passive motion and "massage" to be illusory practice, as regards joint lesions and deformity, I have always held that fractures are not beyond the ability of a handy man, even if unqualified.

There are a few fractures, and conditions of them, of the forearm, to the usual management of which improvements can be added. Children are brought to the surgeon sometimes suffering from complete, other times, "green" fractures in the upper-third of the arm and with a deformity of convexity on the anterior aspect. If, when setting and afterwards, the limb is posed with the elbow at right angles then these fractures being so high up, the inner of the two splint, usually applied, in their

treatment, inefficiently spans over the fracture. For instance, the inner splint may be six inches long, but the lower section of the fracture may be covered by four and a half-inches of this splint, while the upper one is covered only by an inch and a half, which reduces this long splint to one equivalent to three inches. My reader will no doubt perceive that, if the splint were a mile long below the fracture, it would not benefit it, except it had a near equivalent of that above the fracture. Again in these fractures, the inner splint is the more important of the two because it spans over the convexity of the deformity and has mainly to maintain the reduction when the bandage is applied over both splints. It frequently happens that these fractures repair with convex deformity, which we can attribute to nothing else than the defects of fixation which I have pointed out. Such defects of restoration, though more commonly met with in children, are sometimes also noticeable in adults. The remedy I have resorted to is very simple and effective. It is to manipulate "set" the arm while in the extended position and apply an inner and an outer splint of equal length, and to place the upper end of the outer one sufficiently high to correspond with the point of the olecranon, and then apply the inner splint so that its upper end corresponds with the upper end of the outer splint. Now suitable bandaging is performed. The inner splint having been placed so high, which is only possible when the arm is manipulated in the extended position, makes flexion of the elbow impossible, consequently it is allowed to dangle

unslung, alongside of the patient. The reader will now see the advantages gained. For maintaining fixation, the inner splint extends nearly as far above as below the fracture. Restoration is better obtained, as under the inner splint there is more void into which to reduce the concave deformity, and dangling instead of slinging, the fore-arm is no obstacle, but the contrary, to repair.*

Delayed Repair of Fractures in the Fore-arm.—This is the best place for giving my experience of the treatment of delayed repair of fractures of the fore-arm. I have never met with a case of delayed repair in Colles's fractures, and only once in any bone below it—which was one in the second phalange of the thumb. Colles's fractures generally solidify sooner than the surgeon wishes, thus making, rather soon, any correction of defect of restoration difficult, sometimes impossible. When a fracture in the fore-arm appears to me to be delayed in repair, I instruct the patient to set aside his sling and allow the arm to dangle. If this be not soon followed by greater consolidation, I fix the fracture by the interrupted method of that of "damming," and, if still there be no improvement, I add to the two preceding items, percussion at proper intervals.†

Fractures of the Lower End of the Radius.—Most, if not all of the surgeons who have published their experience regarding

* Care must be taken that the bandaging is not over tight in a recent fracture. A coming swelling must be allowed for, as the dependence of the arm will favour œdema of hand and fingers.

† See Contributions part VI.

fractures, have given us special instructions regarding the treatment of those of the lower end of the radius, and have expressed themselves in a manner which conveys, to the student, the belief that the treatment of these fractures is, above all others, the most difficult. The anatomy of this fracture has been thoroughly described for us by Dr. Gordon of Belfast; but though his contribution to the etiological aspect of this question is so exhaustive, his contribution to treatment is not so useful. Do fractures of the lower end of the radius require special knowledge or special ingenuity? It is my belief that they require but "little knowledge yet much wit." In the management of these fractures a handy, though untrained, man might, as the result of his treatment, give to the arm a better restoration than many a trained surgeon. If these fractures require a little more ingenuity than others in their management, they do not require that the practitioner's hand should be a very experienced one; as the lines of deformity are always perceptible to the eye, and further, there need be no dread either of delayed union or of the fracture becoming compound. It is not so with fractures of shafts, for in these the line of deformity is hidden by swelling, and the surgeon has often to guess both at the exact site of fracture, and tendency of deformity, and to be guided a good deal by his memory of the normal outlines of a limb. The foregoing is an epitome of my own experience derived from observation of trained and untrained practitioners while treating these fractures. I watched for many years the extensive practice of an untrained gentleman,

Evan Thomas
H.O.T.'s father

and, to do him justice, record here that he never failed to secure a perfect restoration of these fractures, and, if I were to say that I observed his treatment of two hundred cases, I should be vastly under-estimating their number; yet his treatment, guileless of anatomy, was only thorough reduction and reasonably applied counter-pressure.* In the management of fractures of the lower end of the radius, several errors of treatment may happen. First—Imperfect reduction. Second—Use of the limb being permitted, after complete reduction, before the fracture has thoroughly consolidated. Third—When the force producing the fracture further expends itself upon and has injured the carpal bones, and use is permitted before their articulations are sound. Fourth—The limb not correctly slung. As regards the first error, imperfect reduction; some cases are presented to us with no deformity, requiring very little, perhaps no manipulation; others, with obvious deformity, are reducible by very slight extension; but the majority of these fractures require special manipulation if we wish to reduce them thoroughly, instantaneously and with little pain. I now refer, of course, to recent cases. The method of performing the manipulation so as to thoroughly reduce such fractures, is as follows:—

* I hold that the surgeon, who is a successful restorer of fractures of the lower end of the radius, is certain to be equally as successful in his management of fractures of the lower end of the tibia. The conditions attendant upon the former are parallel with the conditions attendant upon the latter. The untrained practitioner whom I have referred to, as being so successful in his restorations of fractures of the lower end of the radius, was equally so in his management of fractures of the lower end of the tibia up to the period of use, when, from his not taking precaution to centralize the weight of the body on the foot, several of his cases would show lapse of deformity. This was a pardonable omission when we consider that surgeons are not even yet instructed how to avoid this secondary deformity.

Mr. A. suddenly enters the surgeon's consulting room grasping and supporting his left wrist by his right hand and exclaiming, "Doctor, I have broken my arm or put my wrist out, I do not know which!" The doctor having assisted his visitor to undress, perceives at once, from the obvious deformity, that he has a fracture of the lower end of the radius to treat. After requesting his assistants to prepare two splints and a bandage, he places the patient in a chair, and assuring him that he will be subject to but very little pain, he grasps the patient's left hand with his right in the manner common in salutation, with this difference, that the back of the patient's hand is in the palm of his hand and the patient's thumb is on the back of the surgeon's thumb, while the surgeon's thumb is in the mid-palm of the patient's; in fact, a sort of reversal of the common act of salutation. The surgeon, with his left hand, grasps the patient's fore-arm close just above the fracture so that, while grasping the fore-arm, the palm of his left hand bears pressure upon the front of the radius, then at a mentally decided moment he very suddenly and dexterously, with the palm of his left hand, directs pressure upon the radius above the fracture in the direction of supination, simultaneously with which he gives the patient's hand and wrist, which he has in his right grasp, a twist in the direction of pronation, bringing these rapid manipulations to a sudden termination by counter-pressure with his left hand in an outward direction and with his right in an inward direction. He has now completed the reduction, which occupied about a second, and the pose of the arm is so that the radius is mid-way between supination and pronation, wrist slightly flexed, and hand slightly adducted. The assistant now hands him two sheet-iron splints, the long or outward splint twisted, so that it corresponds to the outline of the normal symmetry of the fore-arm when in the mid-position of pronation and supination and when the hand is in that of flexion and slight adduction, while the inner splint is twisted to make it fit the inner aspect of the fore-arm. These hollow sheet-iron splints are sufficiently wide that, when properly padded, the encircling bandage can not exercise any appreciable pressure upon the upper line of the radius.

Imperfect restoration of this fracture is never a bar to usefulness, and is a pardonable defect, as being certainly in some cases unavoidable. The second mistake easily happens and is also a very pardonable one. I know that some of these fractures appear ready for use in four or five weeks. In others,

though the fracture be palpably firm, yet, the callus not being sound, some degree of deformity may recur after use. The existence of that which I have described as the third defect is not excusable, because it ought to be perceived, and when present is curable. In these fractures, when the forearm has recovered with perfect restoration from deformity, its use is sometimes deferred by the patient contrary to the surgeon's advice, the sufferer expressing his inability to use it with comfort, while the surgeon expresses the opinion that it is use only that will give him the ability to use it comfortably; in fact, the patient expresses a belief that he is not cured, the surgeon asserting the contrary. The end of such cases generally is that the patients seek other advice and become a rich harvest for bone-setters, passive-motionists, and for the new sect of qualified practitioners known as "massagers," and also for those qualified ones, who write treatises upon "surgical manipulation" and on "sprains," which grossly outrage our common sense and, what is worse, dodge the principles of surgery.

I shall now give the reader an ideal case; but it is on "all fours" with many a real one I have had to contend with—a mere stereotype.

Mrs. A., on entering the surgeon's consulting-room, informs him that she has come to have his opinion as to whether her wrist had been properly set. Exposing her left arm, she pronates it as well as she can, and shows the surgeon the lower end of the ulna, making the remark, "I believe, sir, that bone is out!" The surgeon replies, "No, there is no dislocation." The patient, now slightly supinating the arm, remarks again, "But this wrist is not like the other, and my fingers are stiff; I cannot bend them like the fingers of the other hand!" The surgeon had noticed that there was some deformity; and, knowing that the deformity, simply, would be no

bar to the future usefulness of the limb, he decides, before giving his opinion to the patient, to try and diagnose as to the actual fitness of the limb for immediate use. He requests the patient to allow him to accost her by a salutation with her left hand, in doing which he gives her a slight shake in the usual manner and inquires of the patient whether the act has given any discomfort. The reply is that it has caused some little pain. The surgeon next grips the lower end of the fore-arm well above the carpal joints; and, after requesting the patient to let the hand dangle perfectly free from muscular control, he suddenly gives the limb a few short, sharp shakes, and inquires if that has given pain. She replies in the affirmative. This answer the surgeon is prepared for; for, during this act of testing, her countenance had expressed her feelings, and her right arm was advanced to thwart the surgeon. The patient further informs the surgeon that compression of the hand against a fixed body causes uneasiness, while assisted extension gives some relief. The surgeon now, having come to a decision as to the condition of the part, namely, the existence of some deformity and of an unhealthy condition of the carpal joints following a fracture of the radius four months old. Before giving his opinion to the patient, he addresses her thus:—“Now, Mrs. A., I am ready to give you any information which you may require; perhaps you would like to question me before I advise?” “Well, doctor, I want to know if my wrist is ‘out,’ and whether it can be ‘put in,’ and whether I shall ever get the use of my fingers again.” The surgeon replies, “Supposing the joint were ‘out,’ which it is not, it would not be any bar to your ultimately having good use of the wrist.” The patient replies, “Then how is it I cannot use this hand like the other, and both wrists are not of the same shape?” The surgeon replies, “The reason of your inability to employ the wrist I have convinced myself of. The wrist-joint is “tender,” “unsound,” “unhealthy,” strictly speaking, inflamed in a minimum degree. The same impediment would bar the use of a perfectly symmetrical limb. We first require health in the part, and then use after. Use, when unsoundness exists, will not lead to health.” The patient replies, “Then, doctor, if we leave the arm in the shape it is, can I get the use of it?” “Certainly,” replies the surgeon; “let us bring health to the part, and good, perhaps perfect, use must follow. A joint which is not mechanically correct is more useful, if sound, than another perfect in its mechanism but unsound.” The patient remarks, “Then, doctor, I distinctly understand that I can get the use of this arm without putting the joint back?” The surgeon interrupts her with a remark, “I assured you before that the joint

was not out, and if it were it would not matter." "Well, however," the patient again remarks, "I'm glad I have not to be pulled about and hurt, as the gentleman, who advised me to consult you, told me, that you would have to break it again. I came to you, though some of my friends wanted me to see bonesetter H., or go to a 'rubber'; others advised me to try electricity; others, salt baths. My own doctor said that if I would take chloroform he would soon work it right." The surgeon, with a visibly elongated face, remarked, "You are on the 'mend'; you have only to have patience and give yourself a little more time, and sponge the wrist with warm water night and morning, and let the joint be fixed a little longer; and, in the interval between bathing, let the joint be fixed with a padded splint and bandage, and when in bed place the arm so that the hand is elevated at a level with the head in order to diminish the blood in the part temporarily. This treatment must be continued with abstinence from use until a time has been arrived at, when jarring the wrist and shaking the hand give no discomfort."

It is not an uncommon occurrence for a surgeon to be asked to restore the symmetry of a fracture of the lower end of the radius four or five weeks after the occurrence of the injury. I believe that this is not always possible after the second or third week without the surgeon's supplanting his manipulations by using the "Talipes' wrench" or some such leverage. By such extra means the surgeon can often restore normal symmetry, to a neglected fracture, some weeks after the accident. The lever and the mode of using are shown on plate XIV., fig. 6.

It behoves the surgeon, when using the wrench, to be careful that the fingers of the wrench do not span so far across the arm as to act upon the normal ulna as well as the abnormal radius.

Some surgeons, when discussing these fractures, place among the category of errors the practice of bandaging the fingers. I am not prepared to say that it is theoretically and practically

wrong to do so ; yet, as any unavoidable defect of the fingers, that may remain after treatment, is invariably attributed by the patient to this item of treatment and, as we have not much to gain by it, it is wise to omit it. It is of far more importance, though but little attention is given to it, to sling the limb by a mere "halter," over which the hand hangs somewhat abducted by its own weight.*

Concerning the treatment of these most common of all fractures to be met with, the best average repair and restoration are secured by those surgeons, who invariably give proper attention to making a thorough reduction ; and who, when applying their fixtures, no matter of what form, leave plenty of latitude for their counter-pressing pads to act, and, furthermore, take care that the splints used are just sufficiently wide to hinder the bandage from interfering, by compression as it crosses the radius, with the restored form.

The Diagnosis and Treatment of Dropped Wrist-Joint.—

The term excludes unreduced dislocations and deformities after fracture. The nerve supply of a dropped wrist is always good, and its mechanism is perfect with the exception that there is an alteration in the body of certain muscles, their tendons being normal. The primary cause may have been

* I have never myself applied bandages to the fingers when dressing fractures of the lower end of the radius, yet I believe that doing so is not an error in theory nor leading to any harm in practise, as it is very rarely that the fingers have been hurt. Bandaging prevents a certain amount of œdema, which, subsequently, it is by no means easy to get rid of, and soon impedes the use of the hand. The same annoyance follows the bandaging of a fractured humerus when, the fingers, hand and forearm have not also been bandaged.

temporary centripital disease such as lead-colic, the long pose of the extremity at extreme flexion during centripital disease of the nerve having overdrawn the extensor muscular tissue, or it may have been force, overstraining certain muscles, as by the patient having either injured or simply overlain the limb. A wrist may remain dropped after a centripital cause, though this defect has quite passed away, just as a wrist often remains dropped after a simple overstrain of the muscular tissue. Those cases, which are curable by an appropriate mechanical treatment, can be diagnosed by the observation of certain signs, and the cause of defect in those cases need, in no way, influence our treatment. A dropped wrist is one in which, when the forearm is held by the patient's will in the horizontal position, the hands and fingers though quite limber hang flexed in pronation; but, if the patient is requested to extend the hand and fingers by his will only, they remain motionless; yet if the patient is asked to try and perform, by the exercise of his will only, greater flexion, the fingers flex readily and, also by the act of the will, extend forward again to the position of previous repose. If the surgeon now grips the patient's fore-arm with one hand, and with his other hand fixes the patient's wrist in the position of utmost flexion, he will notice, if he requests the patient to move his fingers, that the slight power of extension possessed by the fingers is much increased. So that while the wrist is maintained firmly flexed by supplemental assistance, the patient can, by the exercise of his will, within a small radius, rapidly flex and extend his fingers. When the foregoing symptoms are

observed, the surgeon may, with confidence, venture to prognose that the correction of the defect is certain in recent cases and highly probable, even where the defect has existed many years. By many years, I include at least eighteen, as I have myself relieved several cases that existed so long, and other surgeons, to whom I conveyed this information, have been equally successful. A recent case may recover in a period of from a week to four weeks, while one of long duration might take six to twenty weeks. It is my experience that those cases, which we meet with after infantile paralysis of the upper extremity, are the most intractable; because that the centre nerve lesion in these cases is never perfectly recovered from; and again, in many of these cases, we have to contend with a dropped condition of the shoulder, elbow, wrist and fingers in subjects, who do all they possibly can to thwart our endeavours to assist them. To always treat a dropped wrist-joint expeditiously, and in some cases, if we wish at all to succeed, we must so apply our mechanical fixation that the hand and fingers are kept posed in relation to the fore-arm in the form of extreme extension, so held as to allow the muscular tissue of the extensors of the wrist and fingers to retract from the overstrain, and further, it must be so attached to the limb that the nutrition of the muscle is not interfered with, by allowing it to suffer from any compression which hinders contraction and tends to maintain the original defect—the overdraw. Having thus correctly applied certain principles, the surgeon has not omitted anything that can forward the cure,

and has only to await his reward. The next is a diagnosis, whether the defect has, after a period of treatment, been done away with. This is very simply made. The appliance is carefully removed; but, before it is detached from the arm, the surgeon should hold the patient's hand, gently supporting it free from all restraint, so that it falls not into the position of flexion; and the surgeon requests the patient to maintain, by the act of the will, the extension position, while he keeps control of the patient's hand lest it should suddenly fall, which would be a sign that sufficient time had not been expended in the treatment, and lest a temporary extreme flexion, being permitted, would delay recovery. However, should the patient, by the exercise of his will, be now able to maintain extension, the surgeon may allow the limb to be used, discontinuing the angular extension apparatus. The theory of this treatment I have already given in a former contribution.*

In the following pages I shall place before the reader a case, as evidence that the theory which I apply to the treatment of "dropped wrist," is based upon good ground. As I have said before, a multitude of cases are no doubt, interesting; but one case, accompanied by reasons in explanation of the symptoms attendant upon the complaint, and its resolutions is vastly more instructive. We may observe a multitude of cases and learn little or, perhaps, nothing. I believe I have learned a little from the cases I have observed and reasoned

upon ; and I have at all times preferred to present the reader with principles which, if applied to practice, improve our skill and bring all to a level. Knowledge is more valuable than tact. In the study of phenomena, get at the cause and that will introduce us to the law of practice. "Nature can be subdued only by obeying—that is, by knowing it." "He who takes Nature for his guide is not easily beaten out of his argument." The information I have tried to convey is a gleanings from long years of clinical observation. Slow of comprehension and wanting in courage, I require to be fully convinced before making a venture ; consequently, my real cases in this and future contributions will not be numerous—sufficient only, in combination with ideal ones, to illustrate to the reader the mode of applying principles rather than exhibitions of personal skill.

During the autumn of 1866, my friend Dr. Burrell of Boston, U. S. A., visited me when we spent a couple of days together in mutual exchange of information and in making clinical observations. Out of many cases observed we examined a case of "dropped wrist," which had been under my treatment seven weeks. On my methodically withdrawing the appliance, we observed that the patient had regained voluntary power of extending hand, wrist and fingers, which he was able to perform perfectly but very slowly. We decided that the treatment should be discontinued. Dr. Burrell inquired of the patient, how long the defect had existed before I had commenced the treatment and, to my astonishment, the patient replied—"Seventeen years !" This fact I had not recollected and I doubt that the patient had ever informed me of it. It caused us to reverse our decision and, instead, to continue for a few weeks longer as a matter of precaution only. After further questioning the patient we learnt that he was a native of Warrington, and that the defect had existed since he was two years of age.

In July this year my friend Professor R. Parker, lecturer in the University College of Liverpool, called upon me, bringing with him a female about

16 years of age suffering from "dropped wrist." The case he had diagnosed according to my rules as being suitable for purely mechanical treatment, yet, although such treatment had been adopted for twelve months, no degree of recovery had taken place. I tested the case myself to diagnose the condition and expressed my belief that the failure was attributable only to the patient's having, wilfully and unknown to Mr. Parker, interrupted the treatment. We now decided to re-apply the fixture and to carefully seal the retentive part so that we could detect any attempt at deception. On our examining the patient a week afterwards we found that the seal had been clumsily interfered with. We renewed the seal, warning the patient that she need not return if the seal were again interfered with. She never put in an appearance afterwards. That the treatment of these cases should be uninterrupted for a time is one of the essential items.

In plate XIV., fig. 3, the reader will find an illustration of my method of fixing a dropped wrist.

Inflammation of the Wrist-Joint ; its diagnosis and mechanical treatment.—The diagnosis of advanced disease of the wrist-joint is easily made, but, when existing in a minimum degree, its diagnosis is not so easy, as there may be but little deviation from normal symmetry. In such cases the application of the test for soundness, sketched in the ideal case on pages 117-8 will be found trustworthy. The mechanical mode of fixation, which I know to be theoretically correct for treating diseases of the wrist-joint is illustrated in plate XIV. ; it is only another phase of the interrupted method of fixation which I have introduced into the treatment of all joints. The base of fixation is attached only to parts of the limb which are healthy, so that pressure, another mode of restlessness, does not worry the diseased area. This method of fixation I believe to be the first essential in treatment and should be uninterruptedly adopted.

Dislocations backwards of the First Phalange of the Thumb of Index Finger.—Is there an infallible mode of reducing these dislocations? Certainly, but before I introduce the reader to that “mode,” I shall give here a sketch of my experience. I have had opportunities for reducing very many of these dislocations, which had existed from a period of two or three hours up to one of two or three weeks. Whether the dislocation was that of the thumb or of the index finger, I never failed to succeed if the case was a recent one—say one of two or three hours duration. The cases of longer duration were mostly those which other surgeons had tried and failed in, and where afterwards my own efforts also generally failed. I never, to reduce one of these dislocations, give an anæsthetic, yet succeeded at times where others had failed with its aid. I have tried all known methods, and many of them before they were generally known to the profession, and, of all the methods, tenotomy has been the most disappointing in my practice. The reader will readily accept this as my opinion, when I inform him that being determined to effect a reduction in the last case where I used tenotomy, all other plans having failed, I thoroughly performed the operation, subcutaneously dividing all resisting structures yet I failed to reduce it, and had the mortification to see the thumb become gangrenous, and had to amputate at the joint. My failures continued for a long time before I bethought myself of applying to these dislocations a mode of operation, which I was constantly applying to compound injuries of joints and fractures, if not immediately reducible. It is far better to

apply a trustworthy plan, though it involves the compounding of the dislocation which is better than irretrievably injuring the part by delay and frantic efforts at a reduction, which is probably impossible. The operation, which must succeed, is extremely simple.

The surgeon, supposing the dislocation to be that of the first phalange of the left thumb or index finger, having in his possession a lever nearly the shape of the letter S, and a strong tenotomy knife, requests an assistant to steady the thumb or finger, while he, with his left hand, grips the patient's wrist. The surgeon now, with the tenotome or strong narrow bistoury, in his right hand, inserts its point through the skin in front of the joint and passes it over the head of the metacarpal bone, half-way through the structures of the thumb and between the articulations. Withdrawing the bistoury he rapidly introduces in its place the narrow-bevelled strong steel lever, the end of which he hooks under the base of the first phalange bone, then depresses the handle, while the assistant extends the thumb, and guides it forward over the head of the metacarpal bone—the leverage being directed from behind forwards—just the reversed action of using the same lever for compound inward dislocations of the ankle. The construction of this lever is such, that one end can be used for the smaller articulations and the other end for the larger ones. The end suitable for a large articulation could not be used for a small one, while the end suited for a small articulation, though possible of use to a large articulation, would do some harm; it would unnecessarily indent the bone at its acting point. An assistant is not a necessary adjunct to the performance of this operation. Plate XV., fig. 1, is given the form of the lever reduced one-sixteenth; fig. 2 shows the lever about to act.

*Read Oct 14/88
P.R.*



PLATE 1.

The cervical collar, showing also front and back view of same when applied.

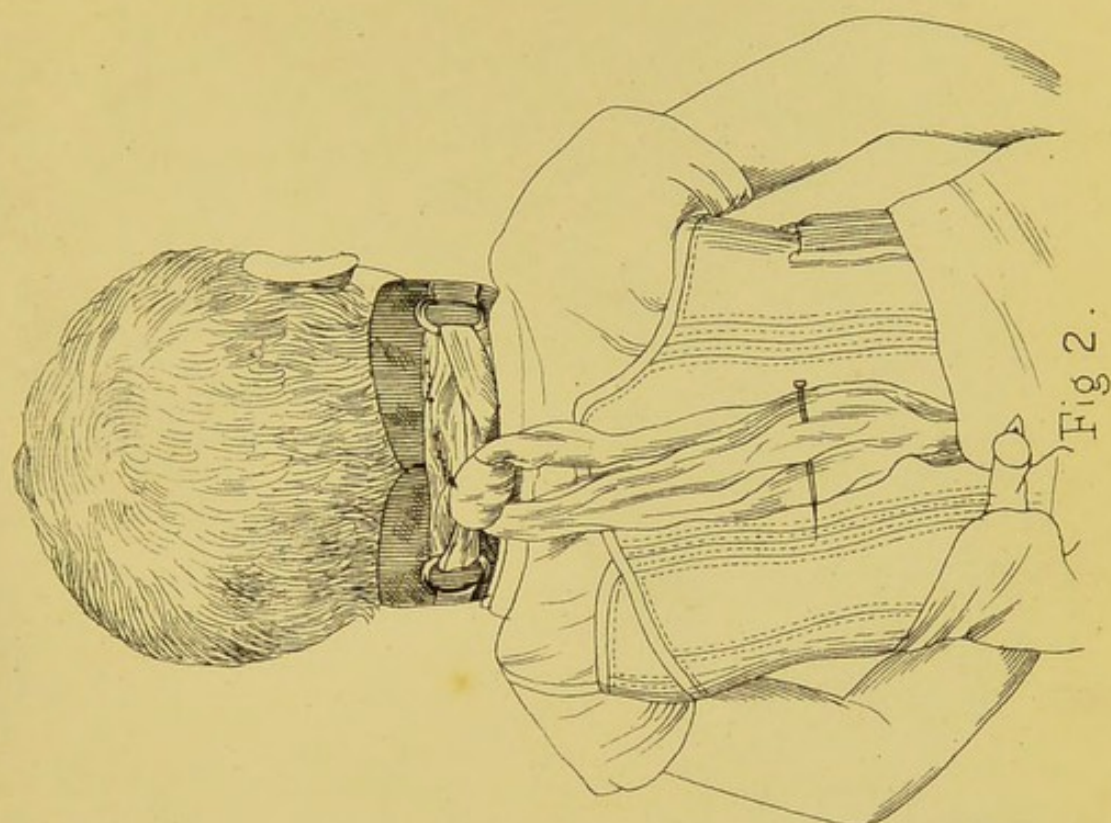


Fig 2.

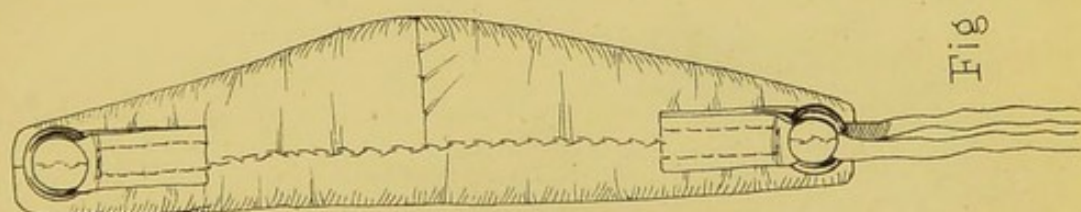
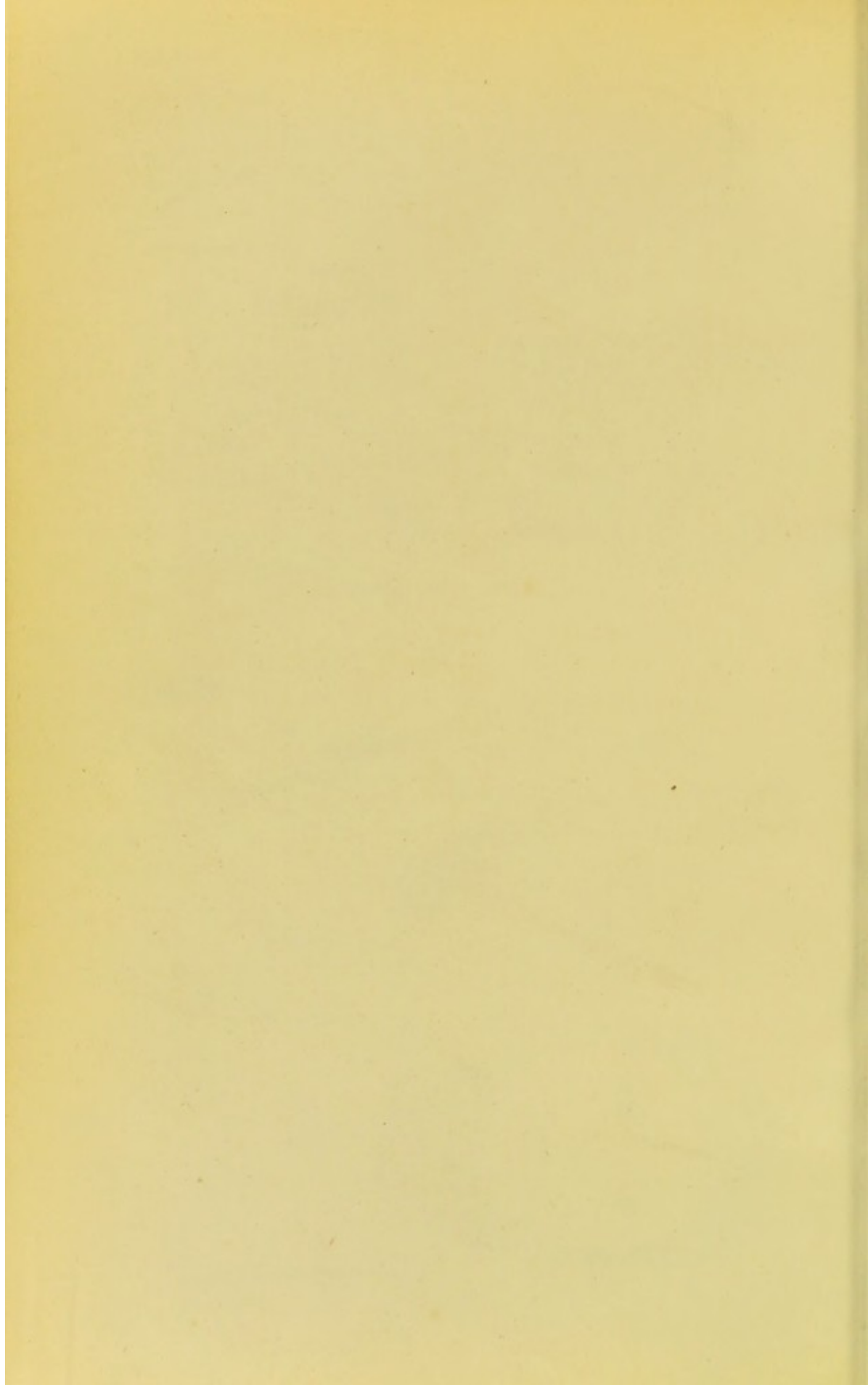


Fig 3



Fig. 1.

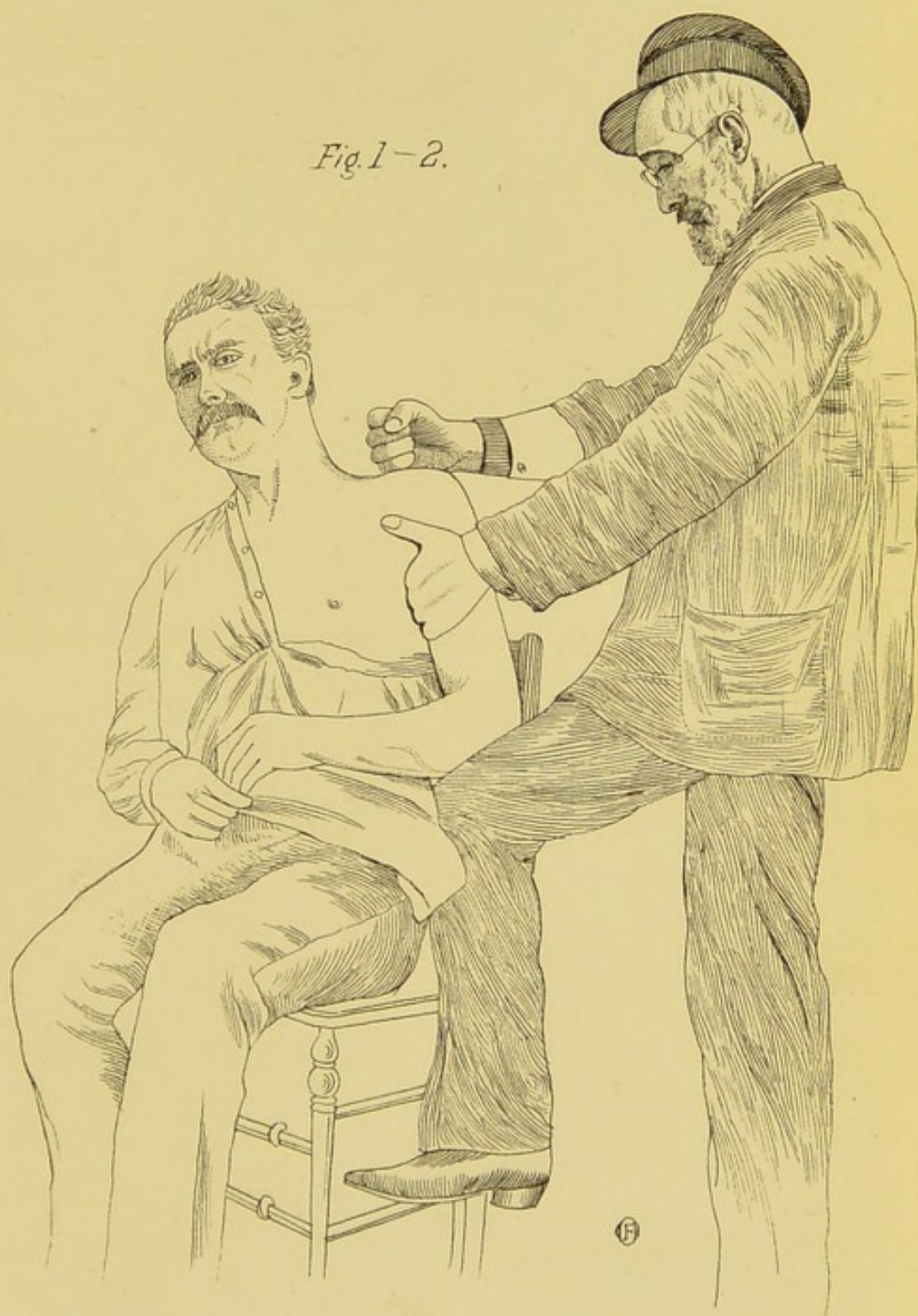


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PLATE 3.

Fig. 1-2 shows the act of correcting a delayed reduction of the clavicle displaced from the acromium.

Fig. 1-2.



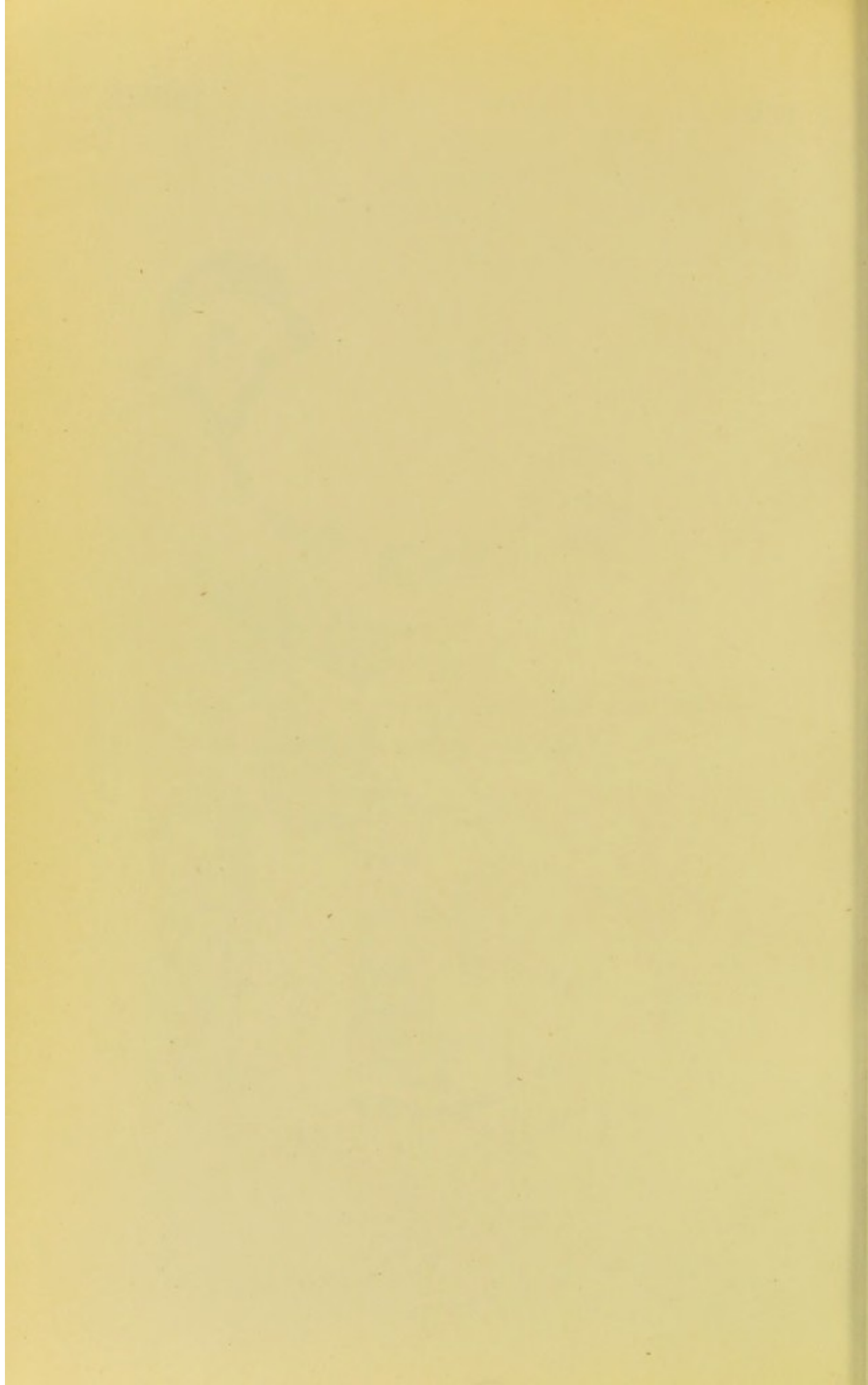




PLATE 3.

Fig. 3-4. The initial manipulation when fixing a clavicle, disconnected from the acromium, where there exists much muscular resistance.

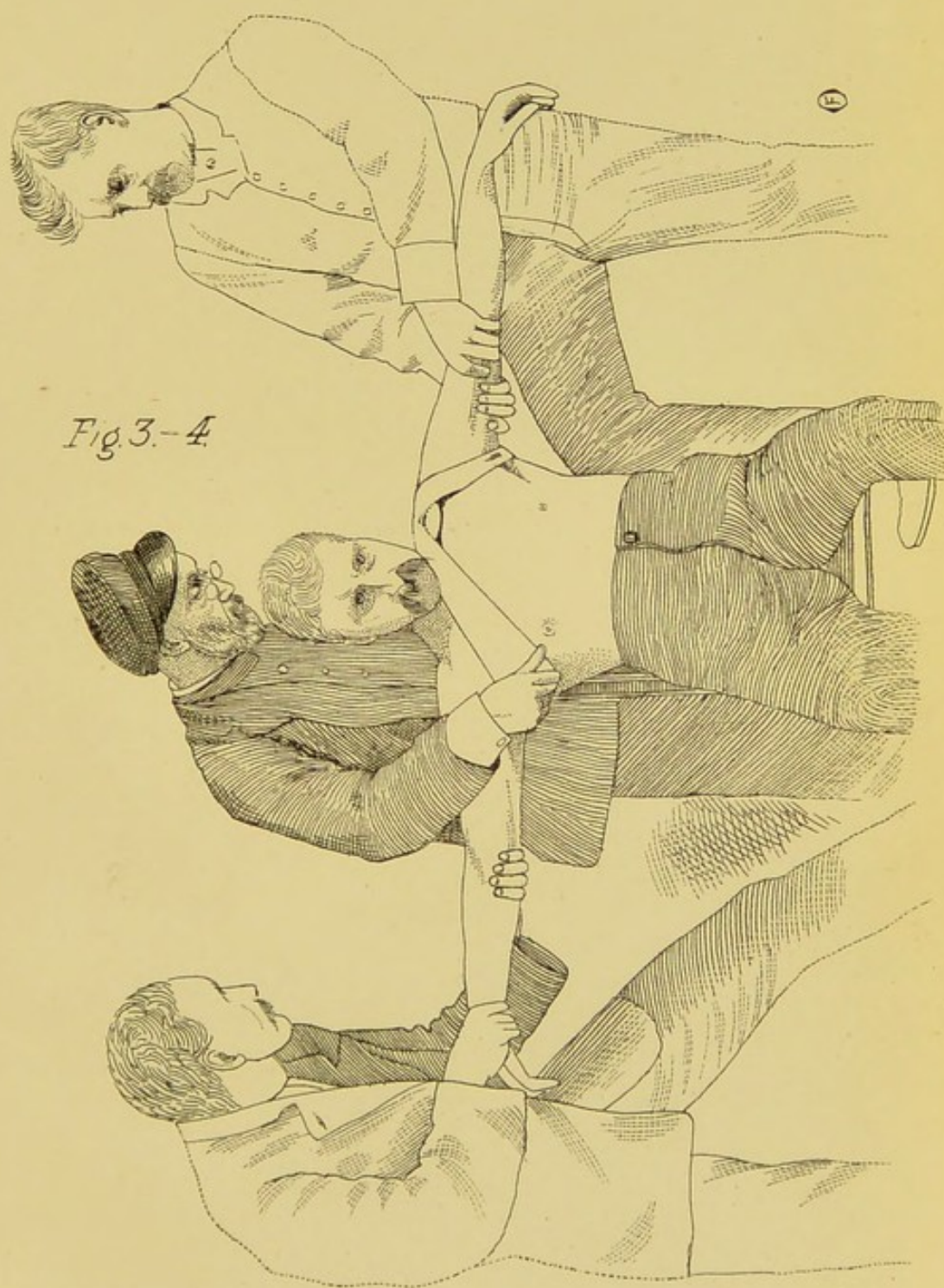
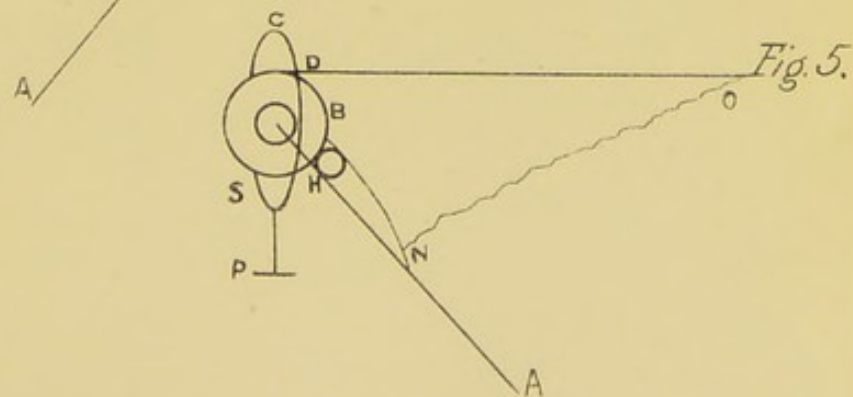
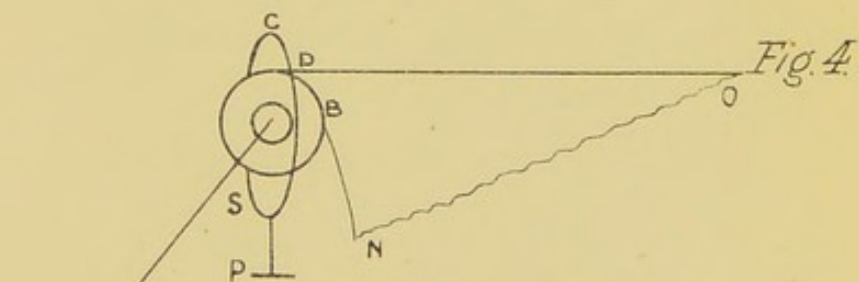
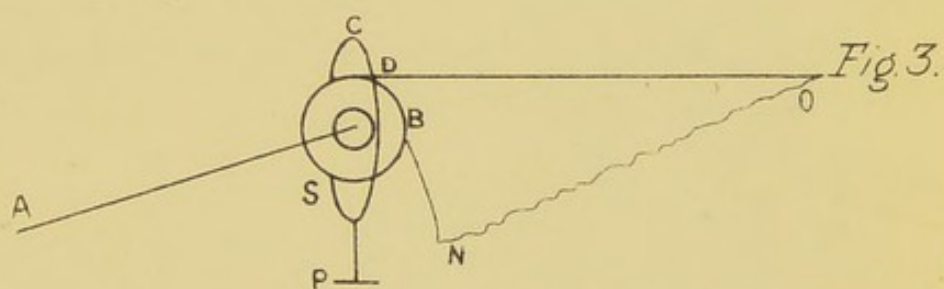
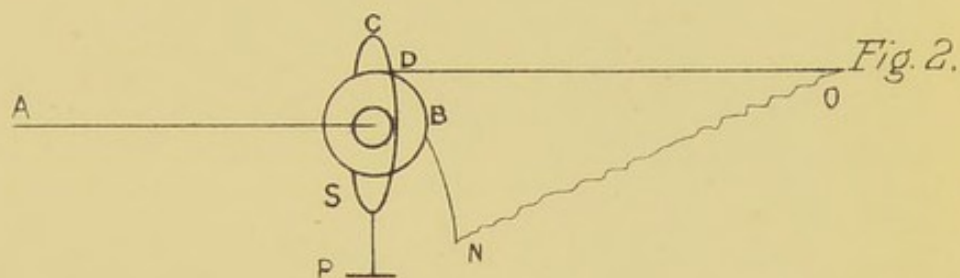
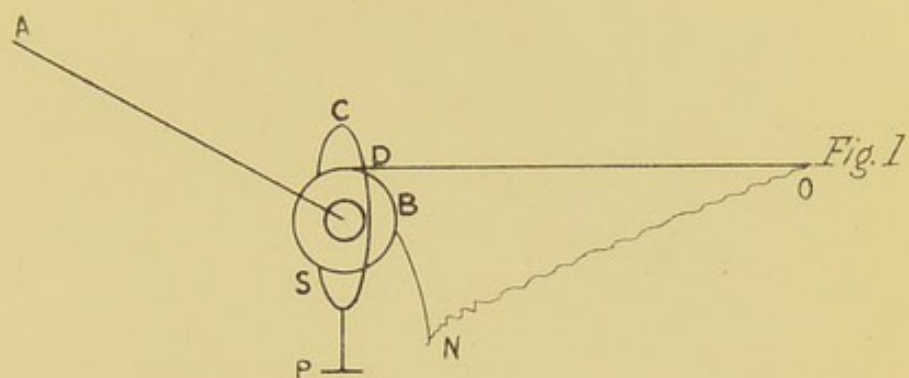


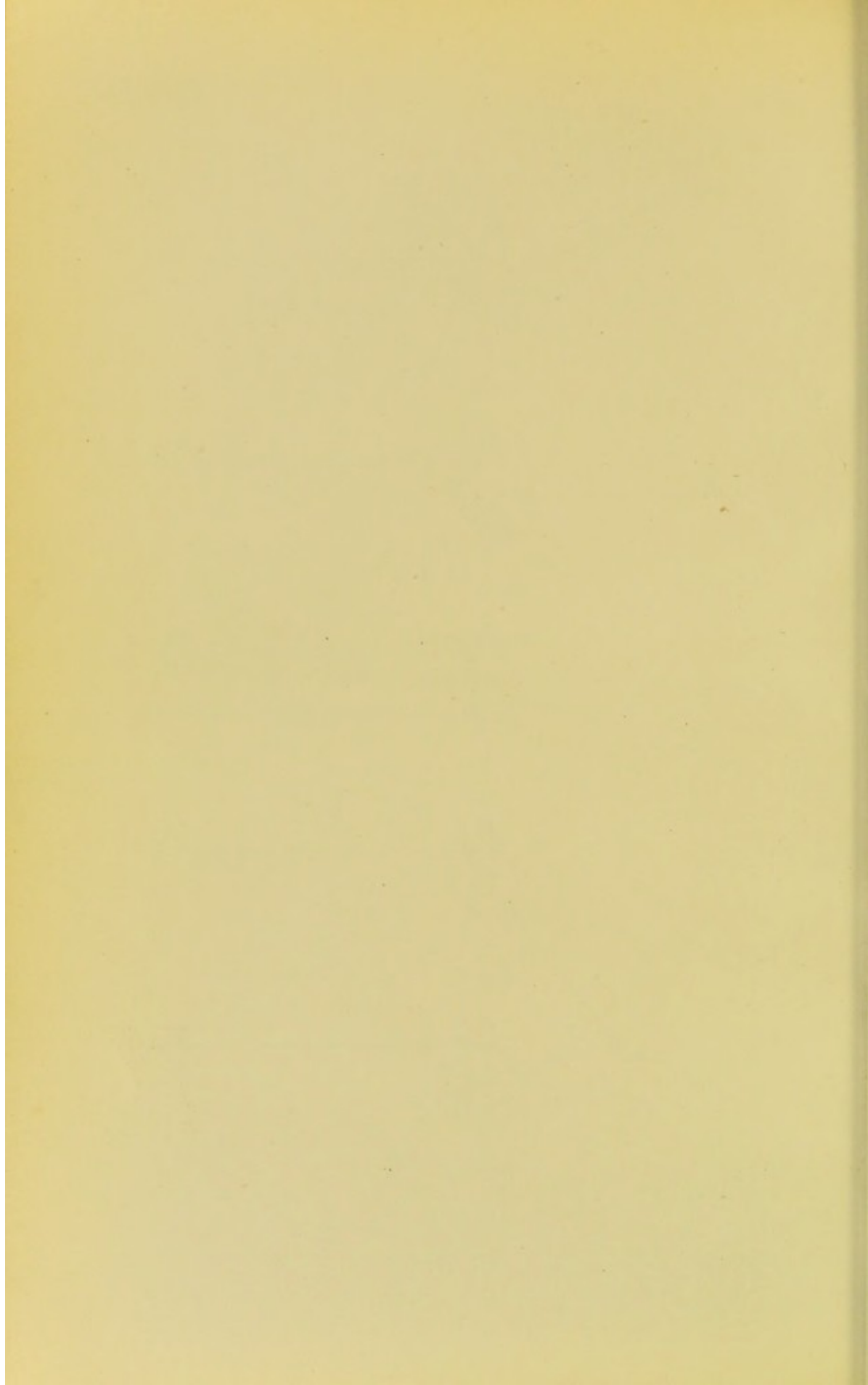




PLATE 4.

Diagrams explanatory of the reduction of recent and ancient
dislocations of the shoulder-joint.





Page 11

THE HISTORY OF THE
CITY OF BOSTON
FROM 1630 TO 1800

PLATE 5.

Surgical chair, specially adapted for the reduction of dislocations of the shoulder and elbow-joints.

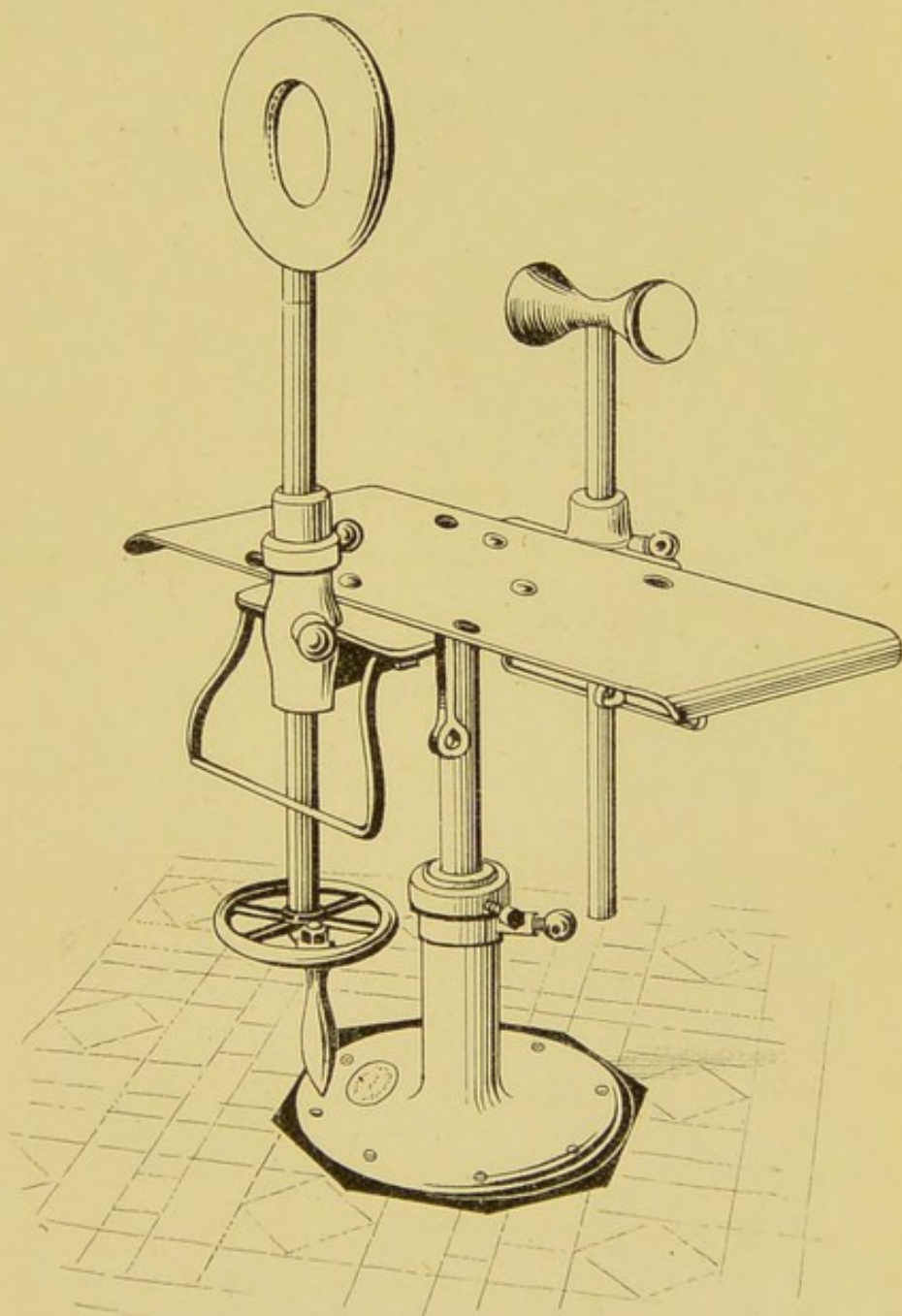
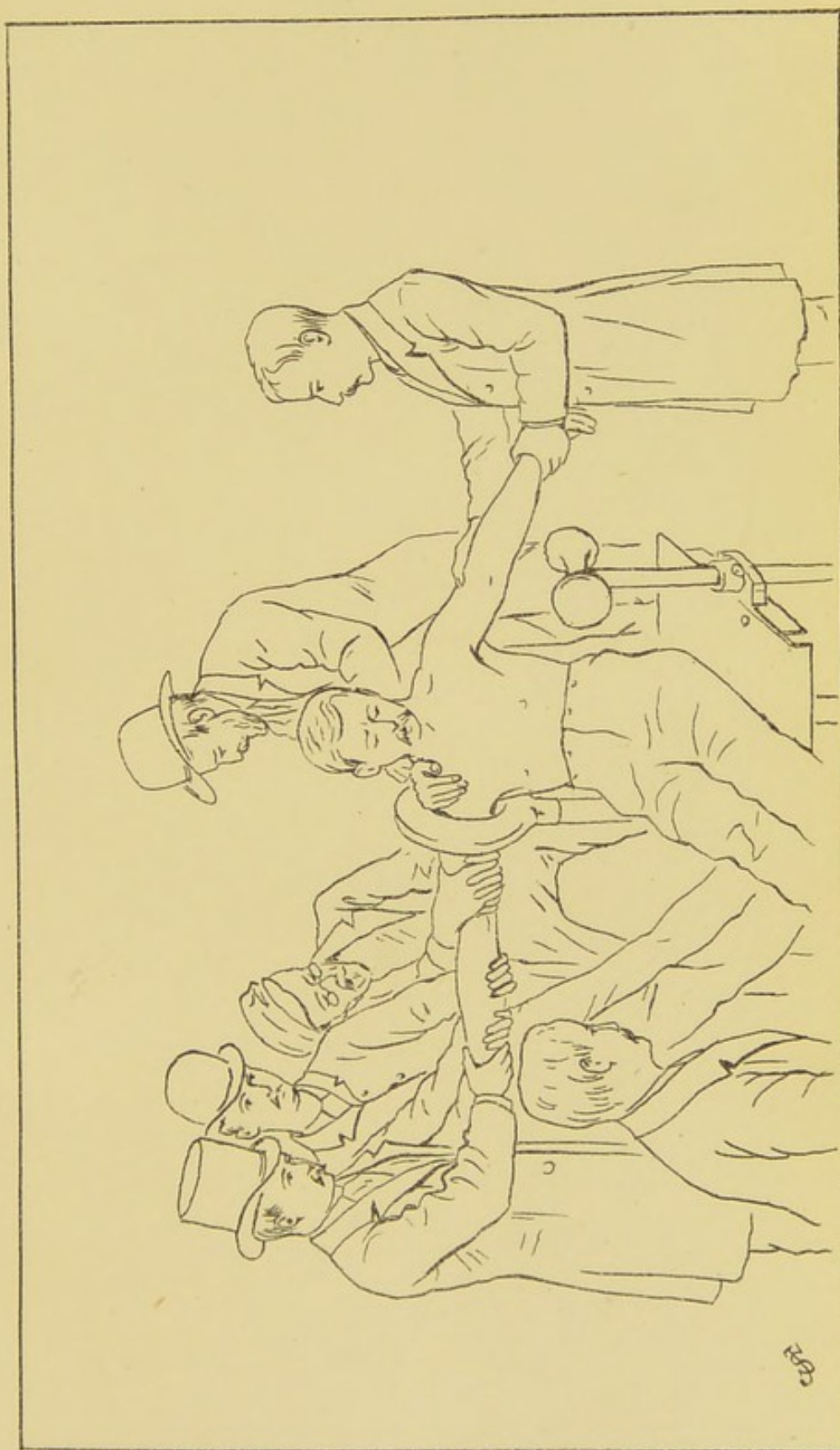






PLATE 6.

The reducing of an ancient dislocation in a surgery.



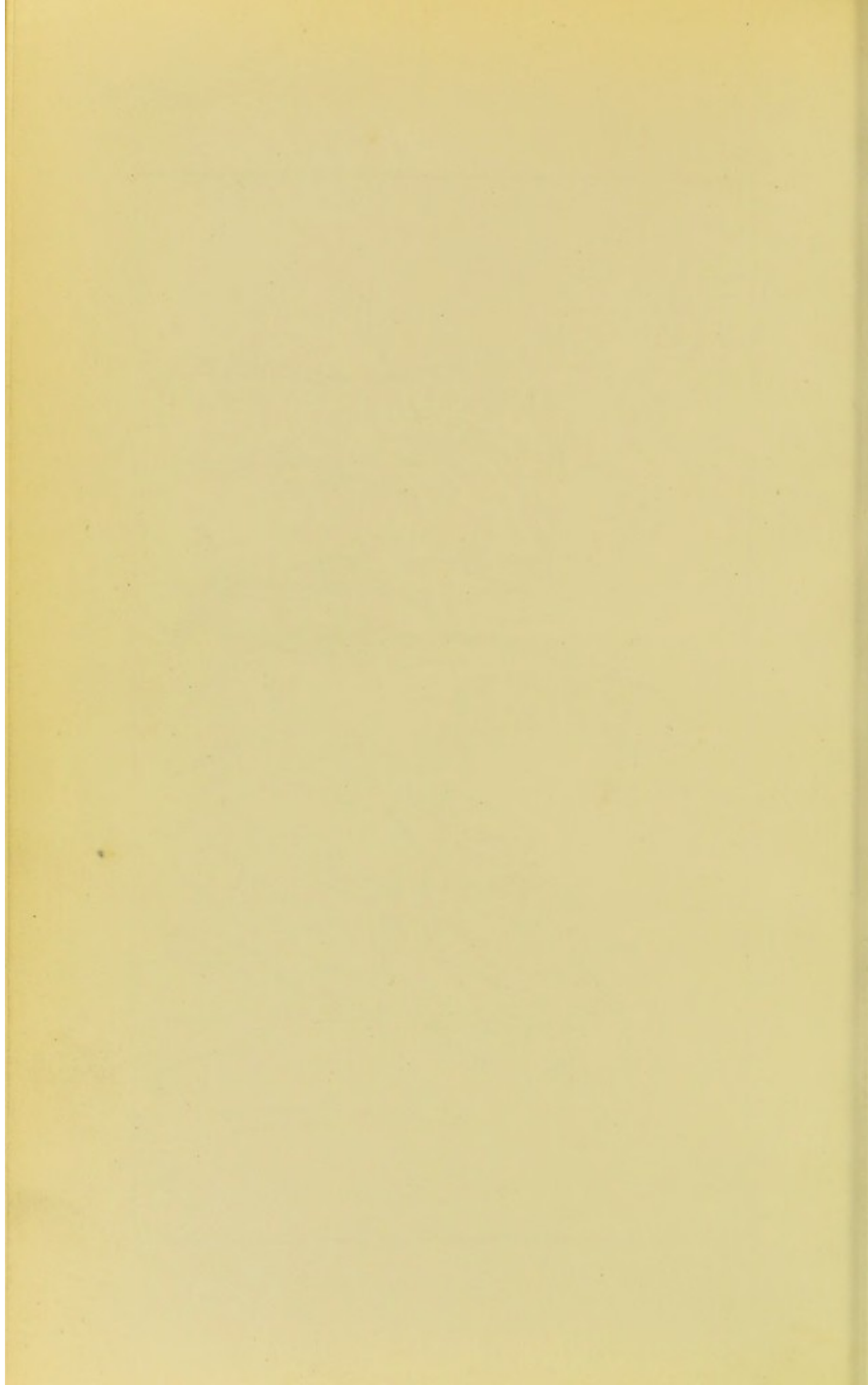
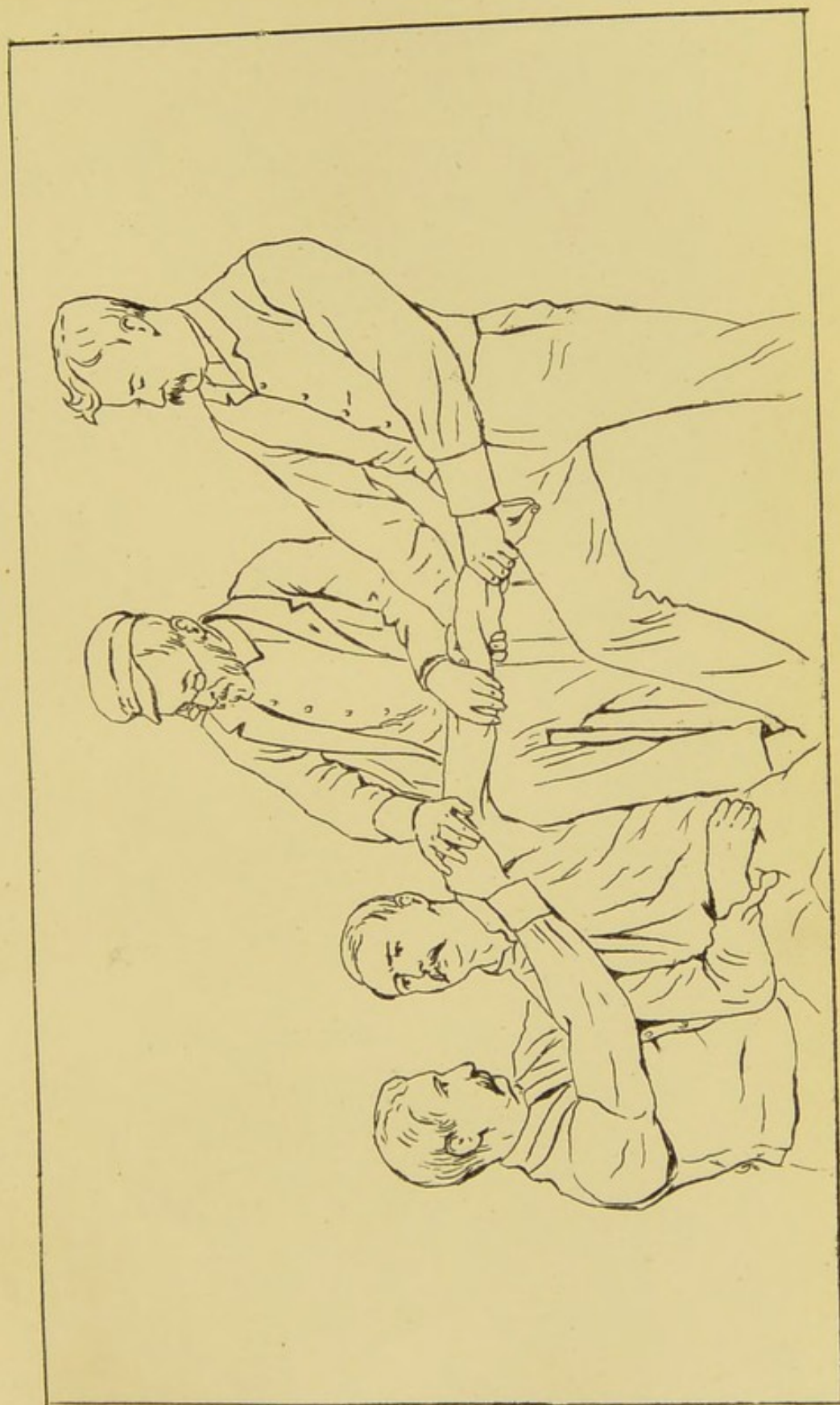




PLATE 7.

The reducing of a recent dislocation "outdoor."



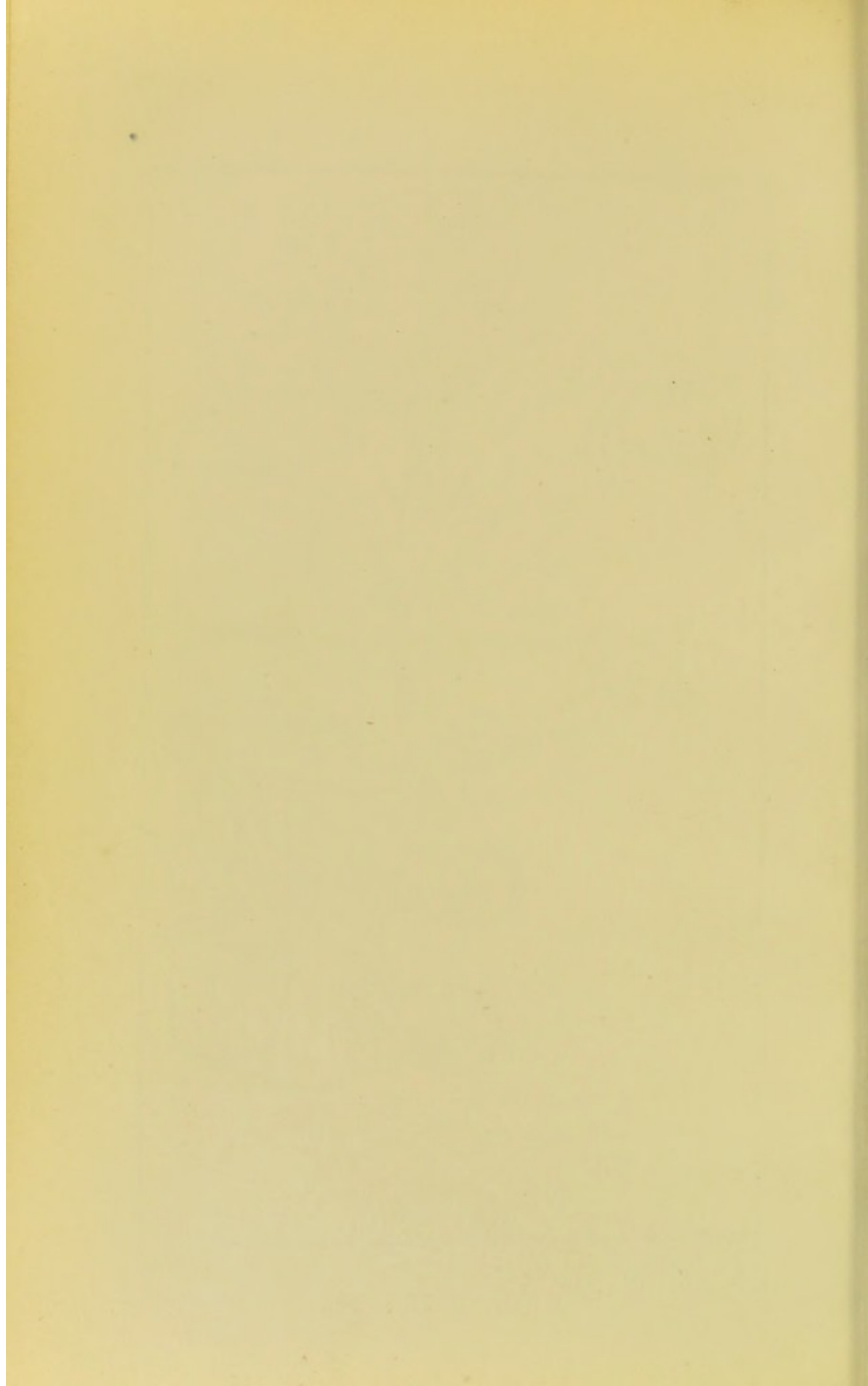
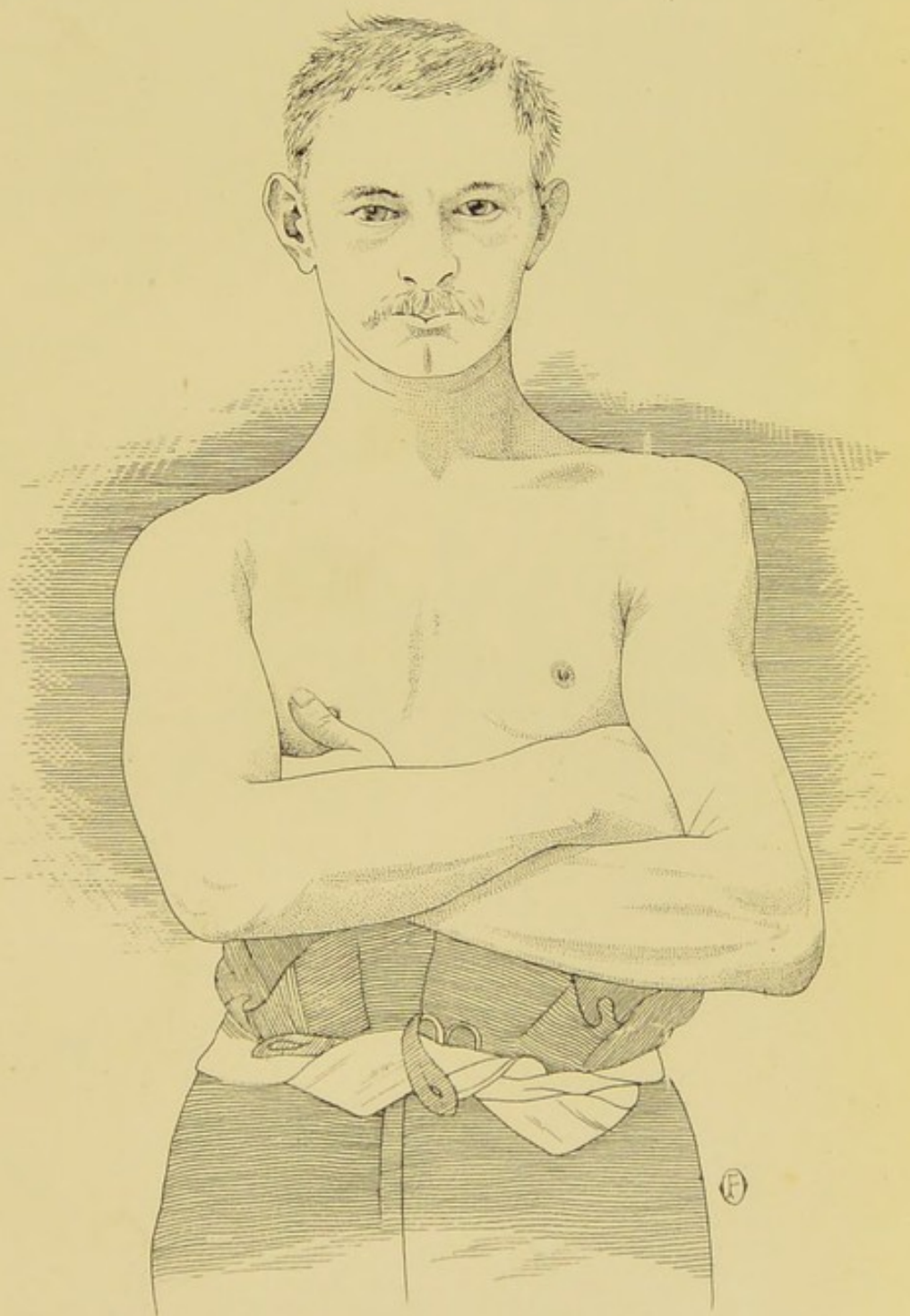




PLATE 8.

Simulated replacement of a fracture of the neck of a glenoid cavity.



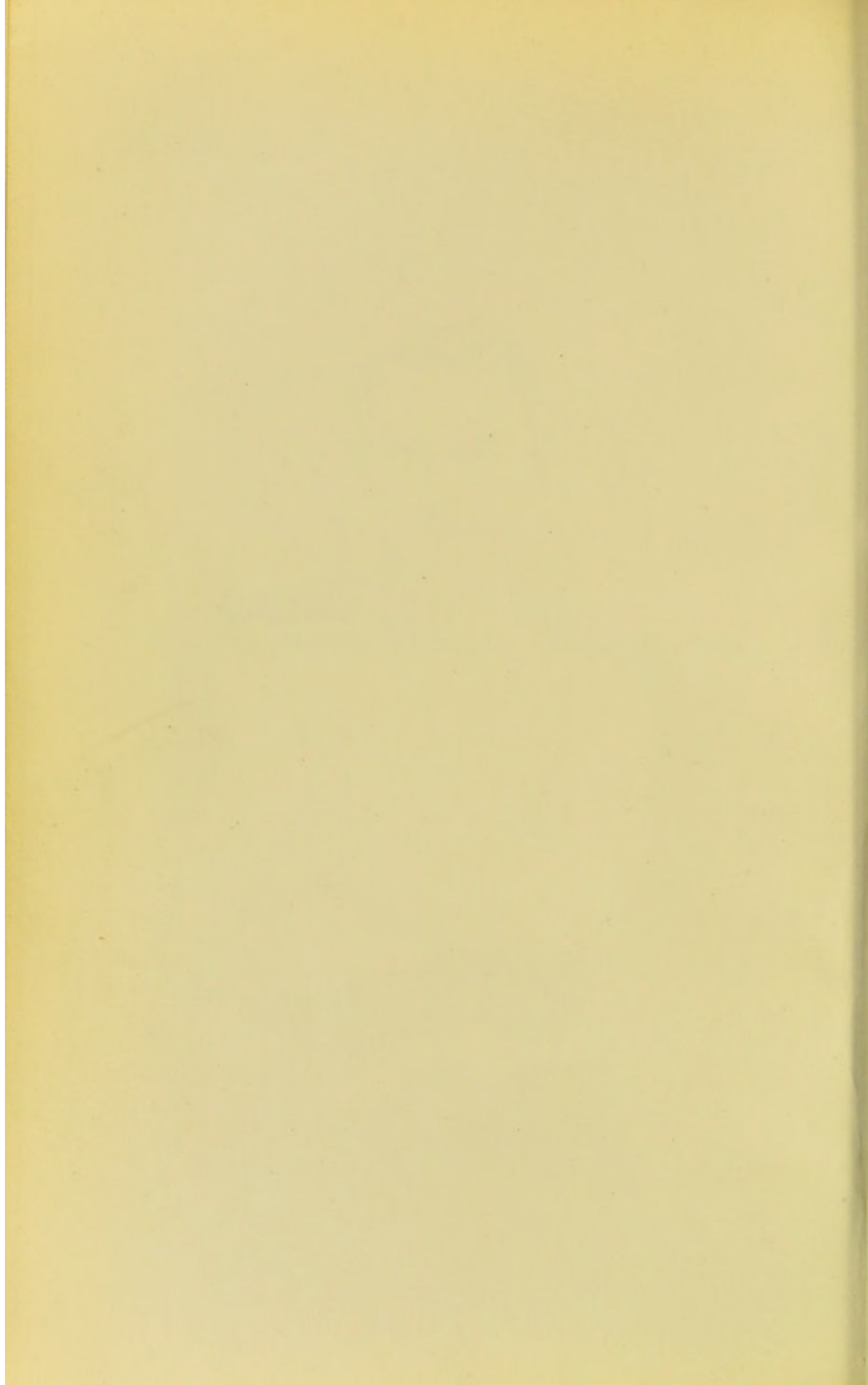




PLATE 9.

Posterior view of the subject of plate 8.

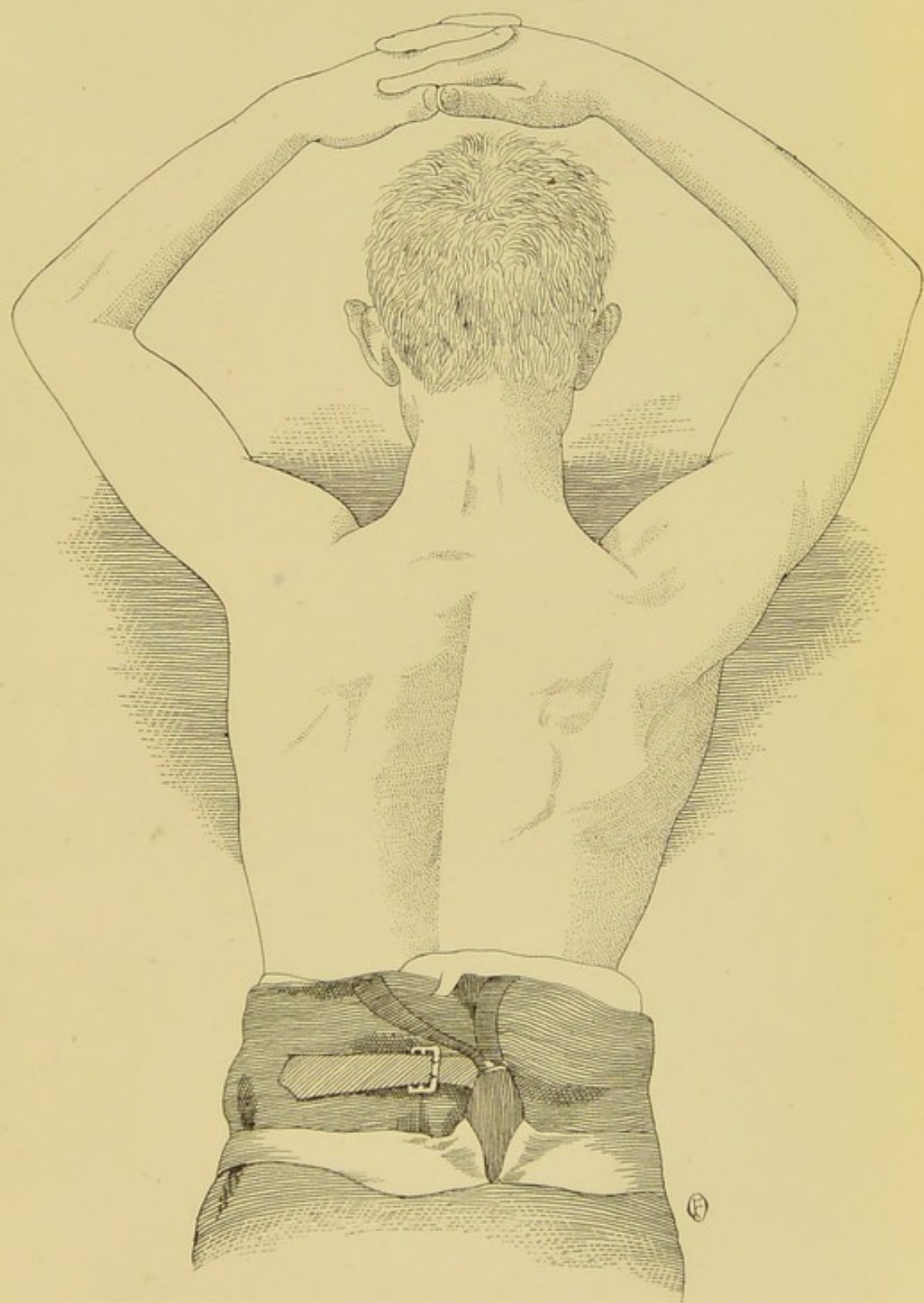
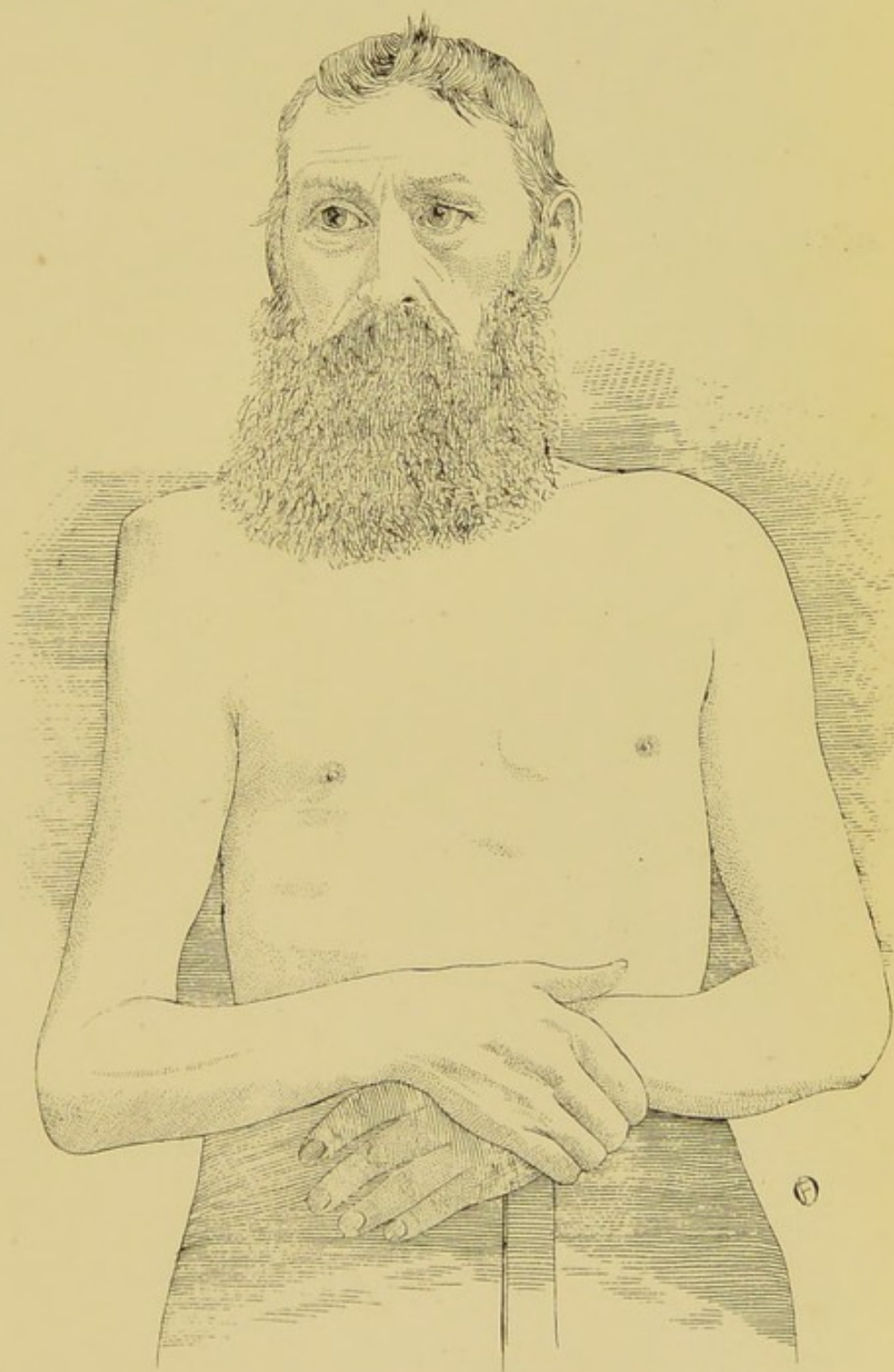






PLATE 10.

Simulated replacement of a fracture of the glenoid cavity.



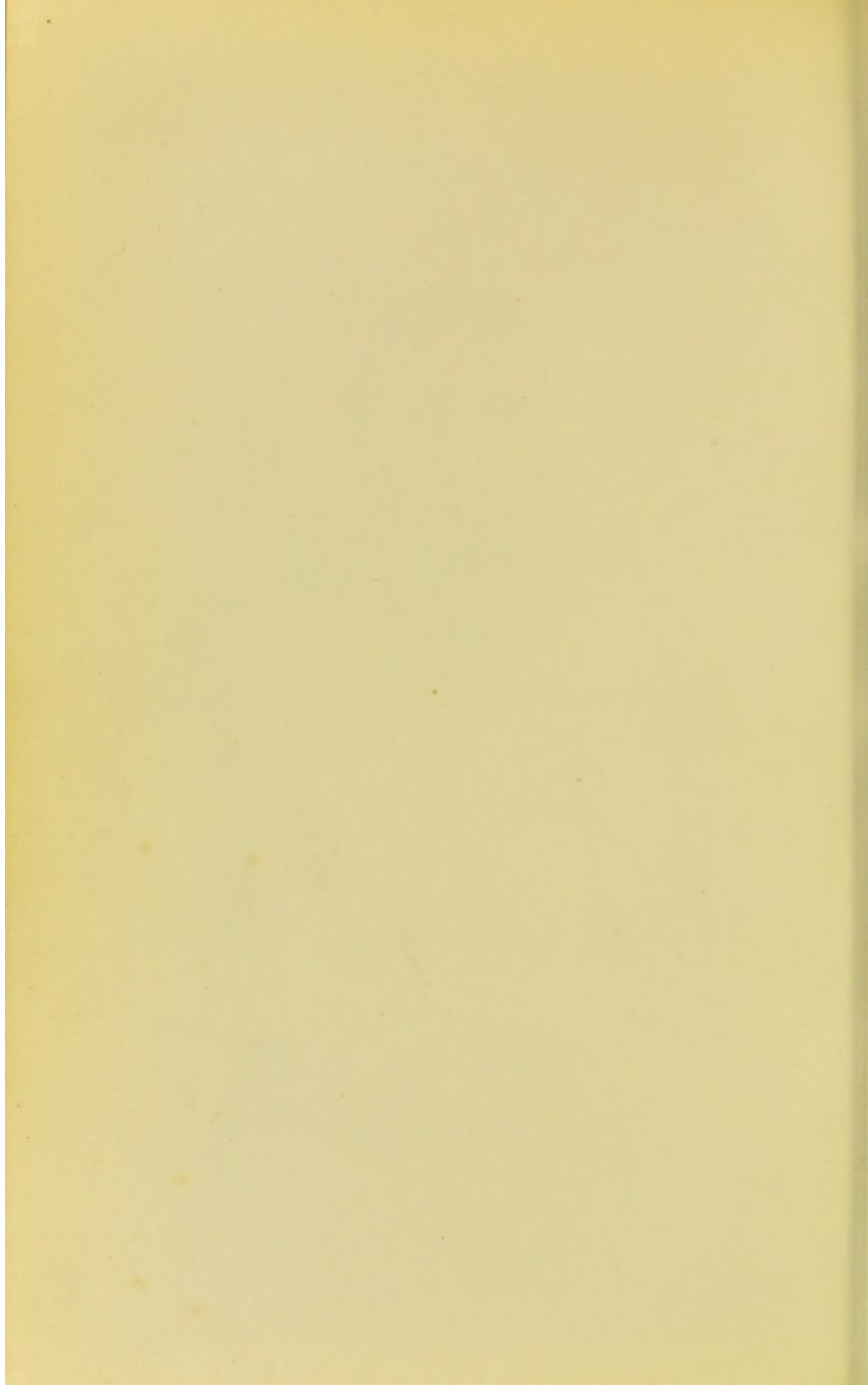




PLATE 12.

Fig. 1 shows in diagram the "gauge halter," applied for injury or disease of the elbow-joint.

Fig. 2 shows in diagram the physical diagnosis of recovery of the elbow-joint from either disease or injury.

Fig 1.

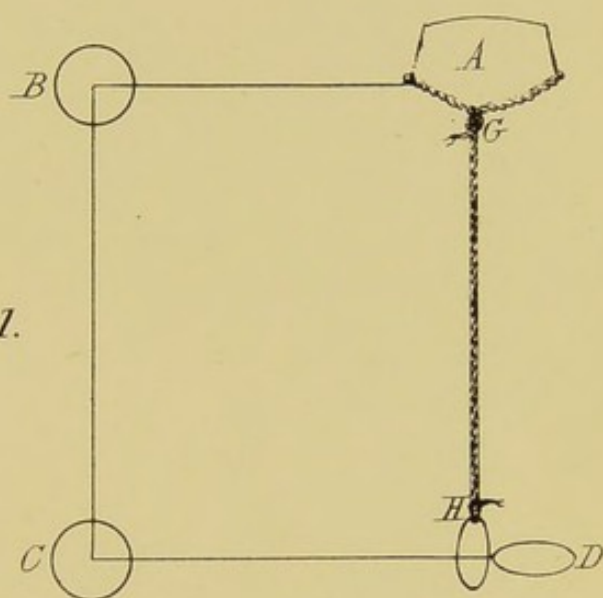
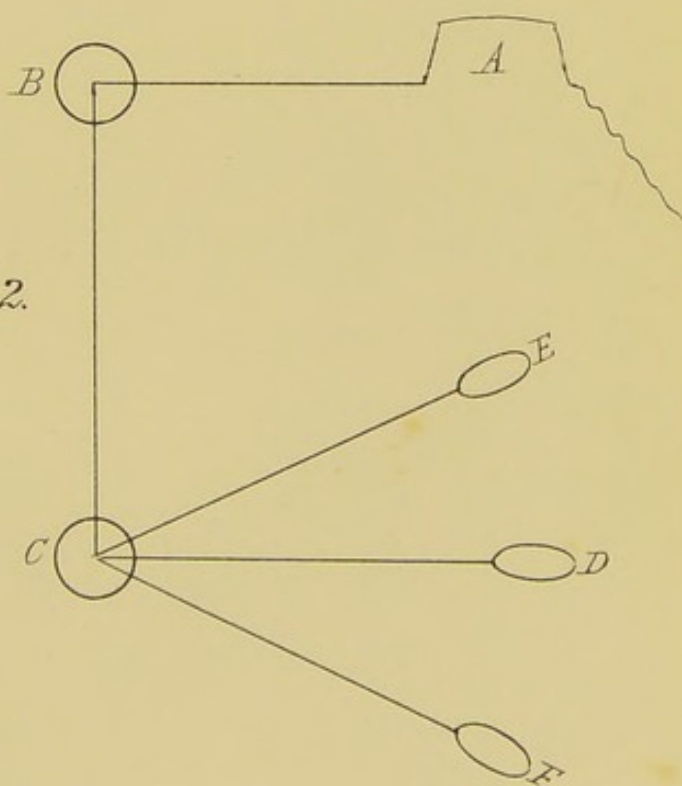


Fig 2.



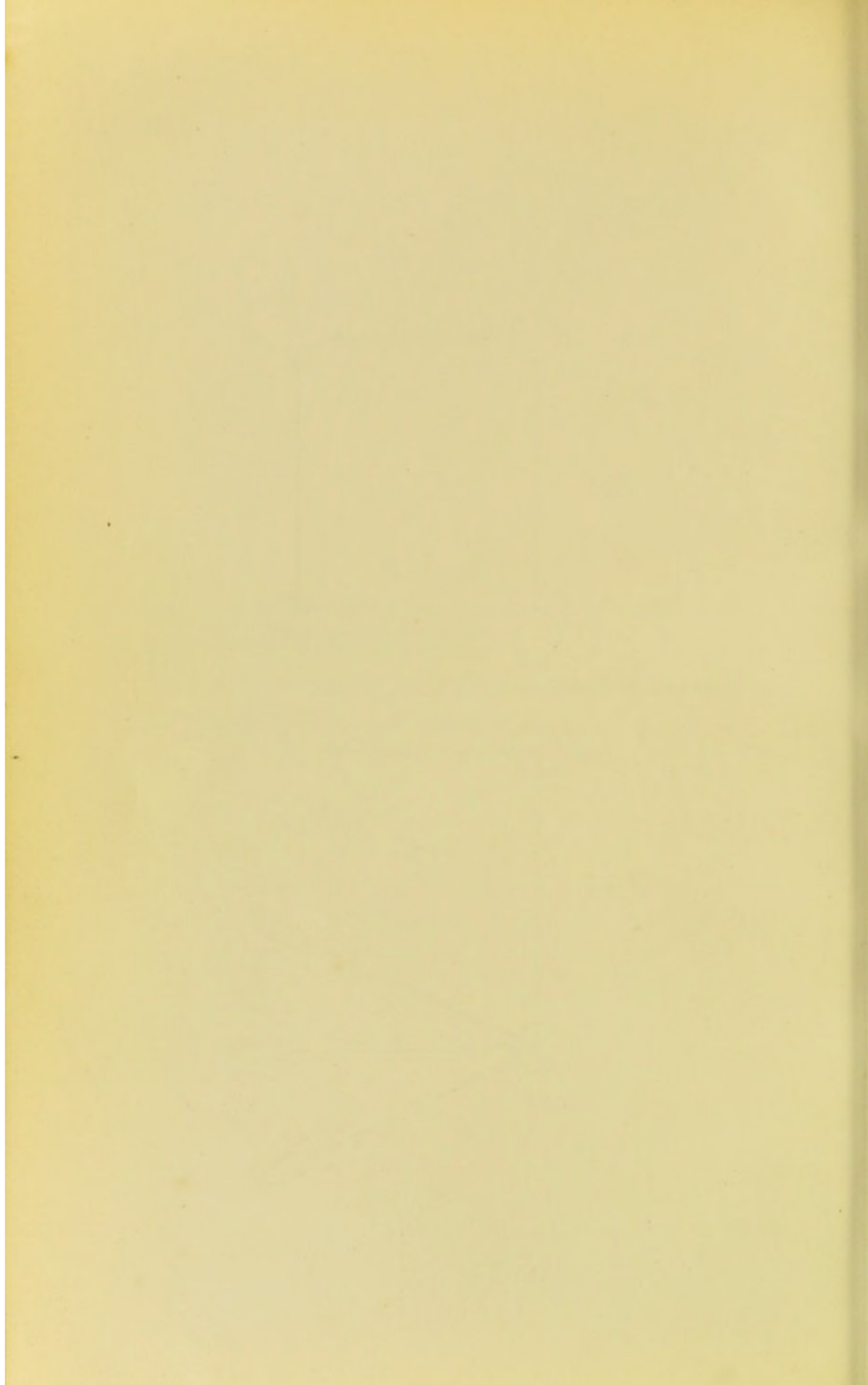




PLATE 13.

Is an illustration of the act of reduction of ancient dislocations of the elbow.







PLATE 14.

Fig. 1 is taken from the last published volume of "Diseases of the Joints," and is given here as an example of one of the errors of treatment which leads to the excision of this joint.

Fig. 2 shows the act of restoring the normal symmetry to a neglected Colles's fracture.

Fig. 3. Fixed dropped wrist.

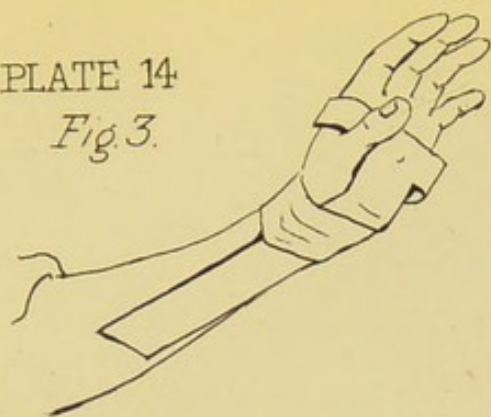
Fig. 4. Inflamed wrist-joint fixed in the interrupted manner

Fig. 5. Delayed union of the bones of the forearm fixed interruptedly

Fig. 6. The "Talipes lever."

PLATE 14

Fig. 3.



PART III

Fig. 5.

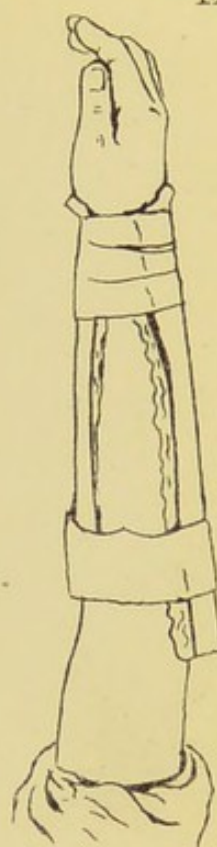


Fig. 1

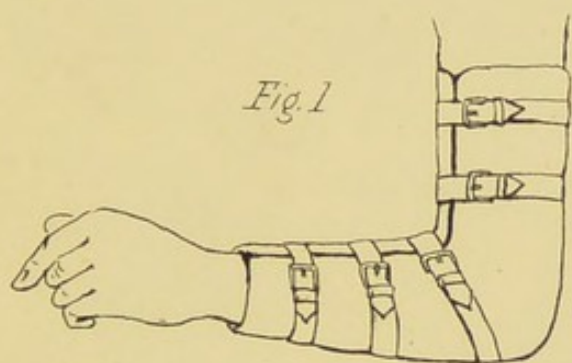


Fig. 2.

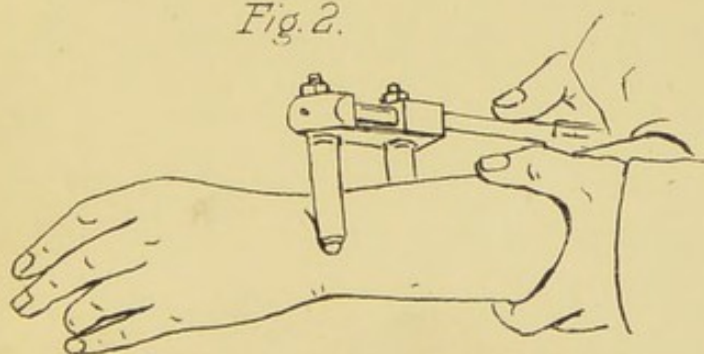


Fig. 4

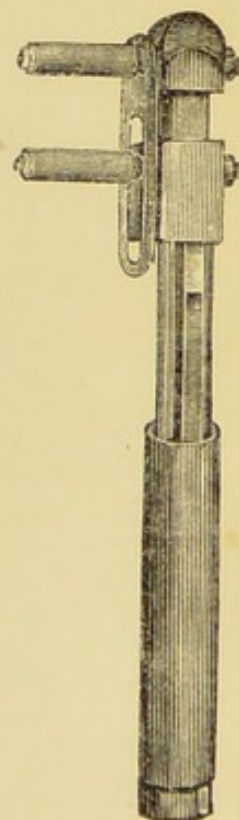
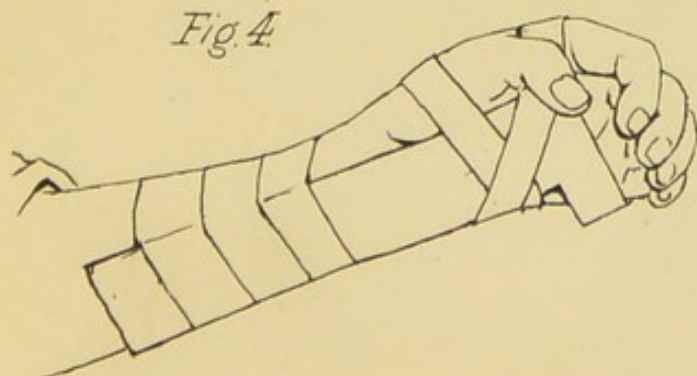


Fig. 6.

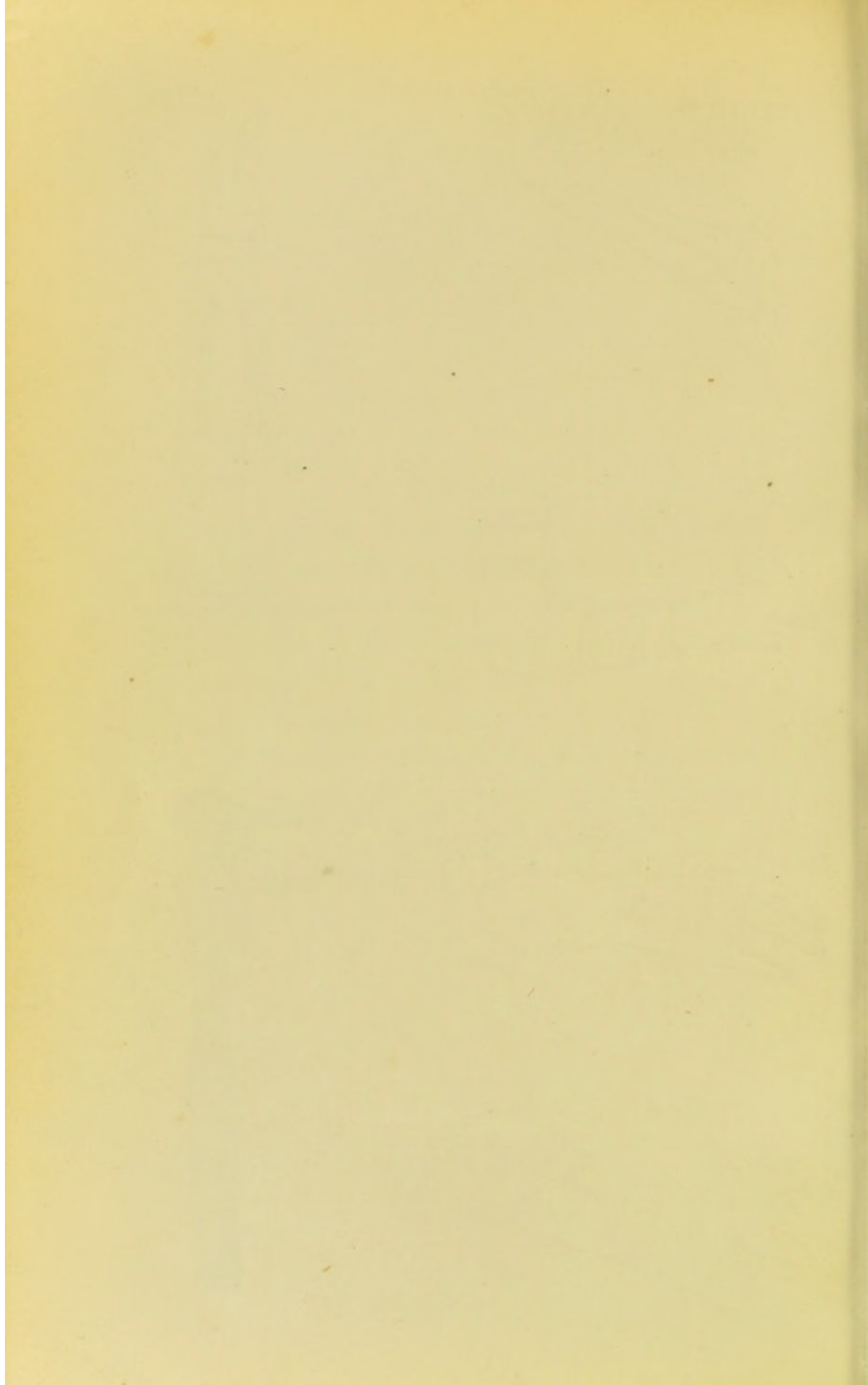




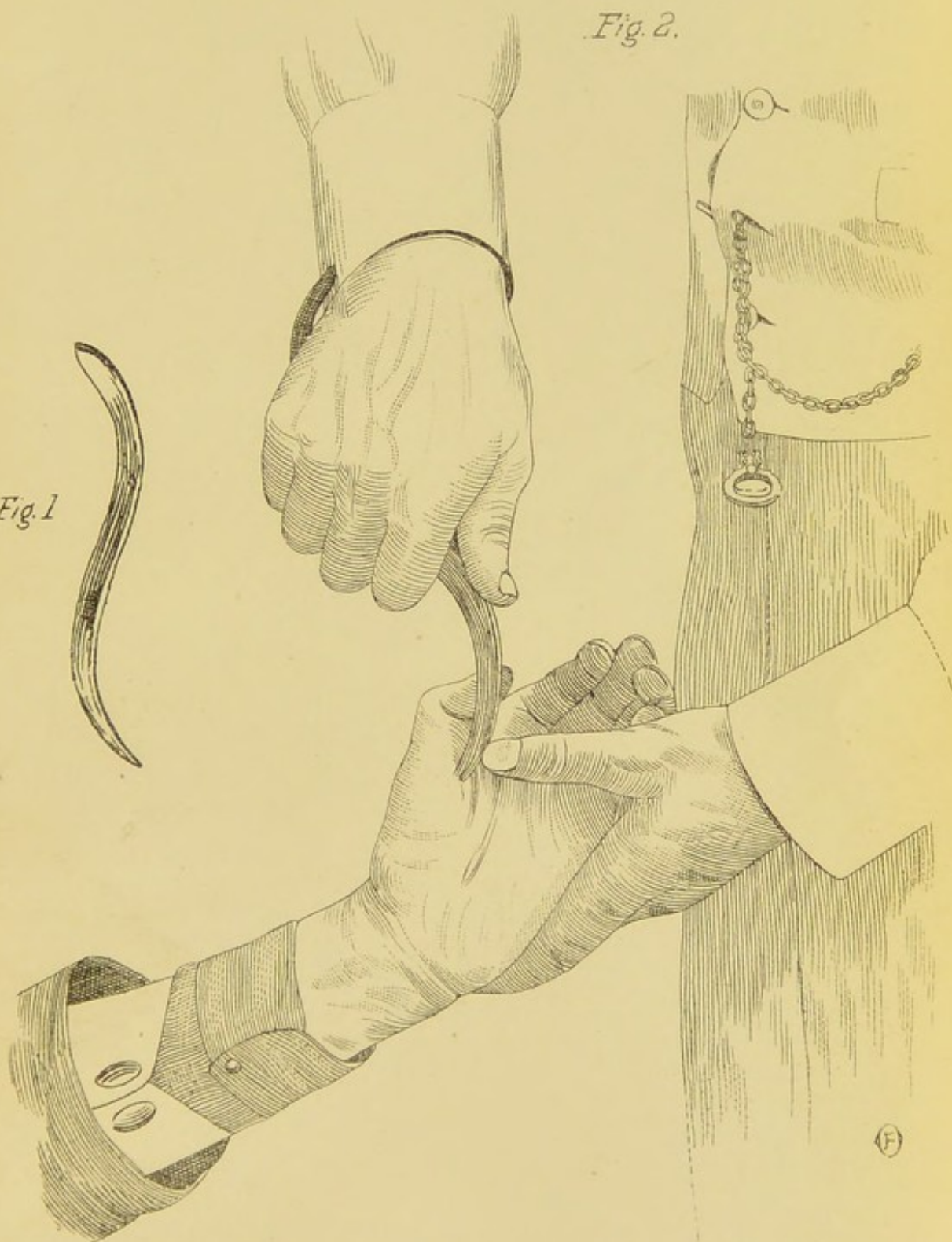
PLATE 15.

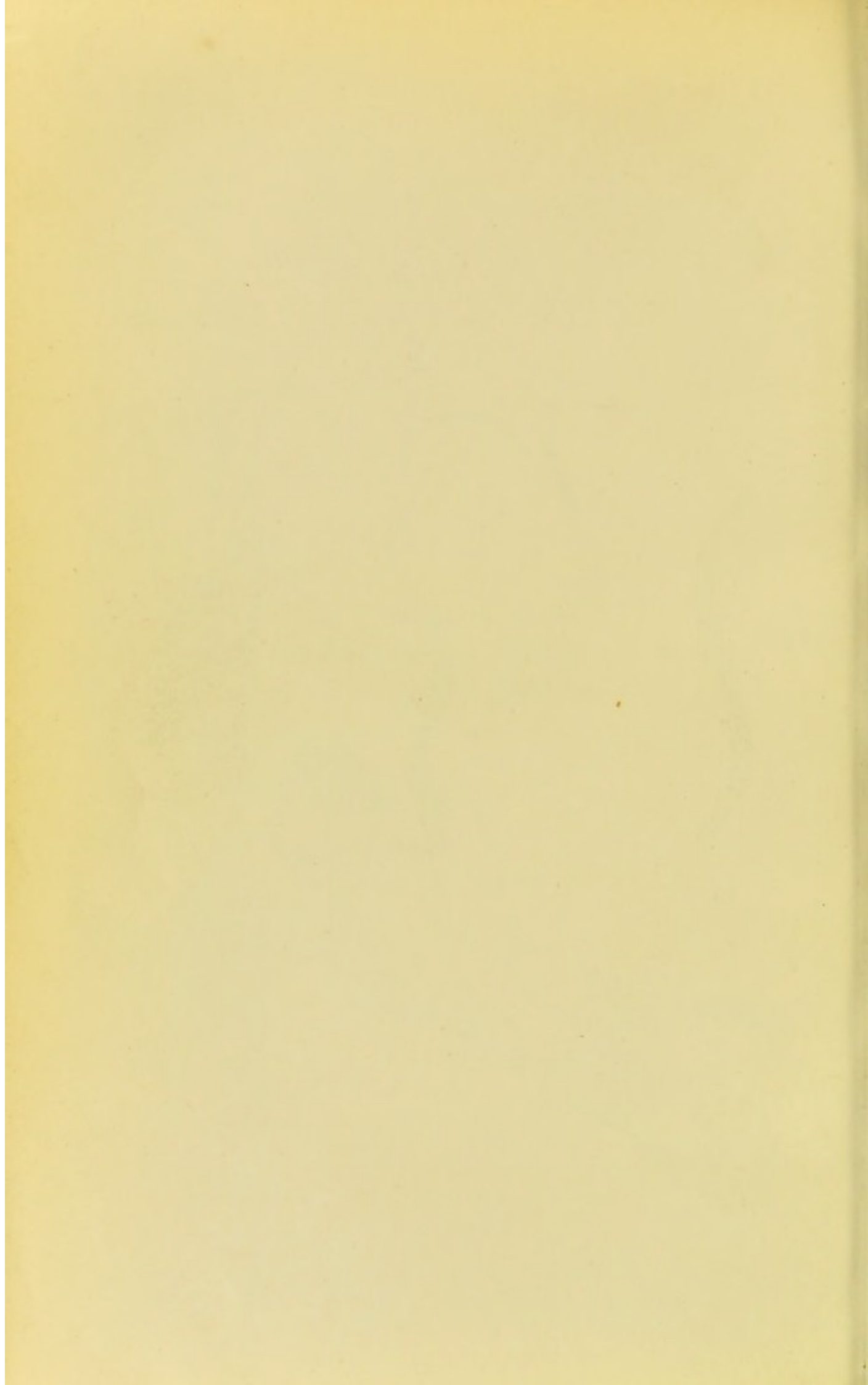
Shows the manner of reducing, by leverage, an otherwise irreducible dislocation of the first phalanx of the thumb. Fig. 1 shows the lever reduced one fourth.

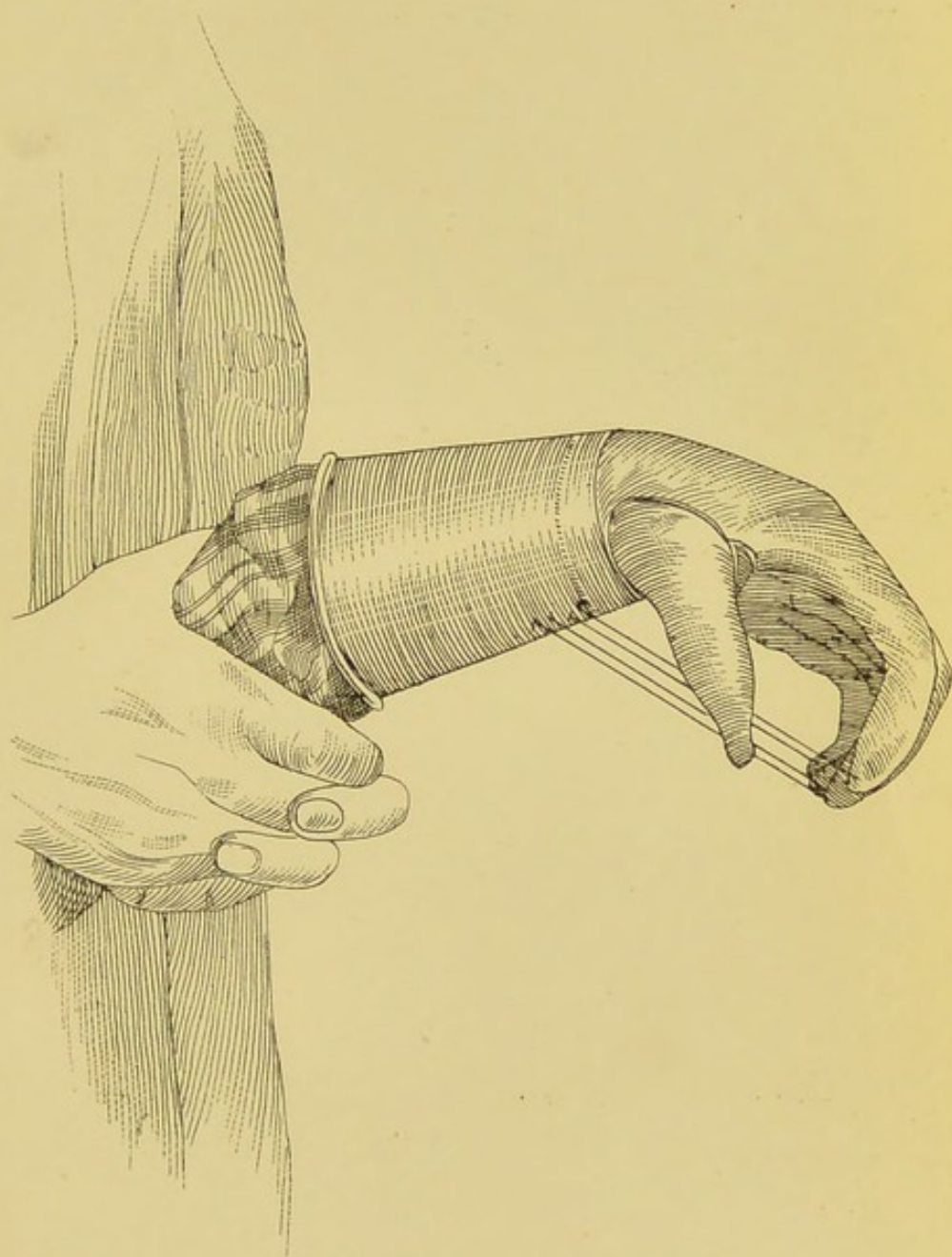
Fig. 1

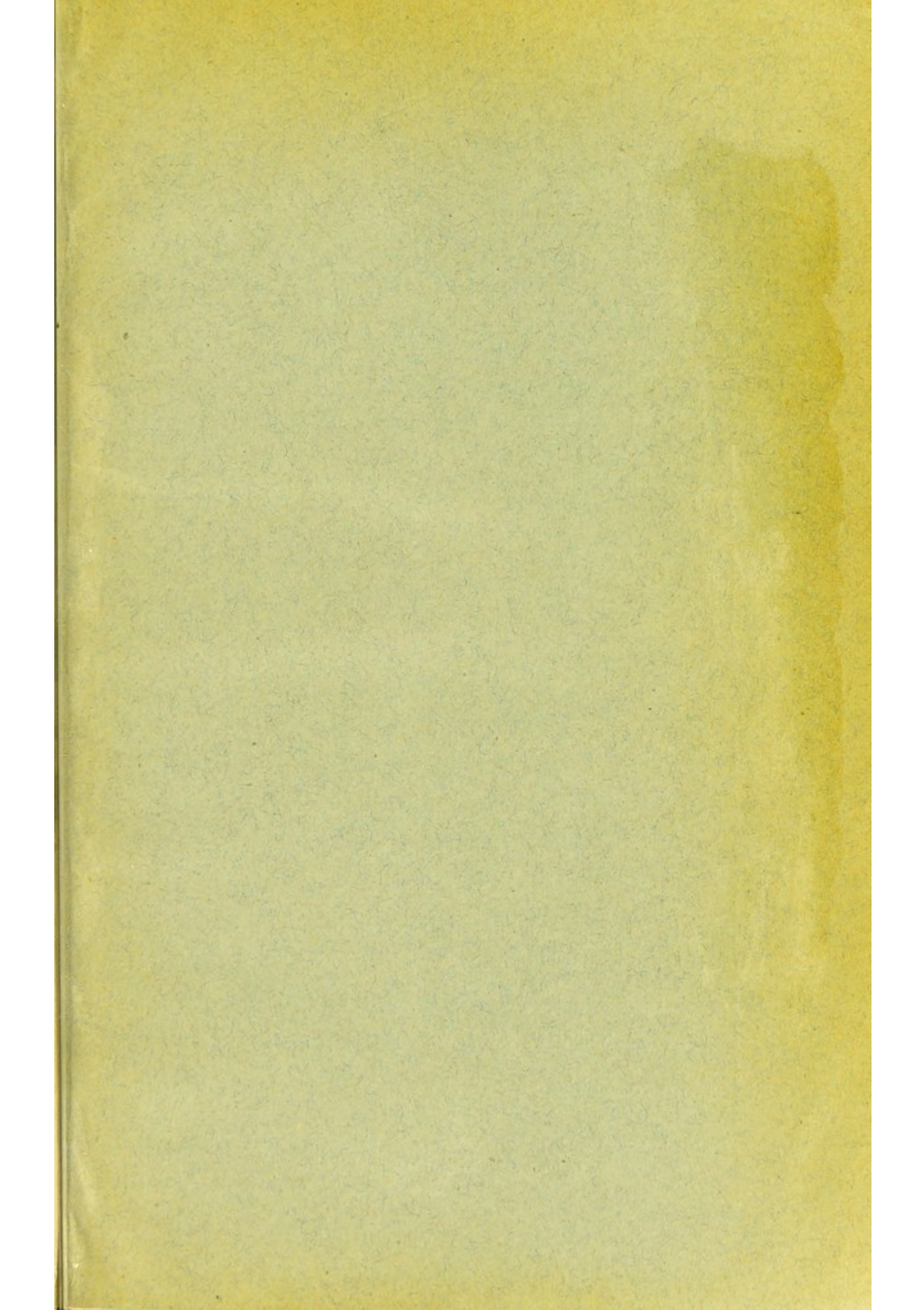


Fig. 2









CONTRIBUTIONS TO MEDICINE
AND
SURGERY.

This Volume will comprise the following Parts:—

- PART 1. Intestinal Obstructions. 21s. (*Published.*)
- PART 2. The Principles of the Treatment of Joint Disease, Inflammation, Anchylosis. Reduction of Joint Deformity, Bone Setting. 10s. (*Published.*)
- PART 3. Fractures, Dislocations, Diseases and Deformities of the Bones of the Upper Extremity, and Spinal Deformity. 10s. (*Published.*)
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